PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.

Vol. 113, No. 7 Thursday, August 14, 1941 Price Ten Cents

Government Issues Notice on Paper Board

Office of Price Administration and Civilian Supply Following Meeting With Eastern Paper Board Producers Issues Maximum Price Schedule Effective Until October 1—Accepted Base Prices.

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 8, 1941—The OPACS has sent the following notice to paperboard manufacturers and consumers: The Office of Price Administration and Civilian Supply met with a group of Eastern paperboard manufacturers in Washington, D. C., on August 1, 1941. This Office concluded that fair and reasonable prices for basic grades for paperboard should be increased $2.50 per ton over the prices established by individual agreements with this Office in June of this year. These previous prices were based upon the cost of wastepaper as of May 29, 1941, which cost has increased three to four dollars per ton. All of the individual representatives present agreed to the change and accepted as the maximum prices to be in effect until October 1, 1941, for manufacturers east of the Rocky Mountains the following prices:

	Per ton
Chip board	$45.00
Single manila lined board	60.00
White patent coated news board	75.00

The differentials to be applied to these base prices are:

	Per Item		
Set Up Boxboards ($1 Gauge List except* —Reg. 50's to 90's incl.)	½ Tons	Over 3 Less 10	10 Tons or Over
1 Plain Chip	+ 5.00	+ 2.50	Base
2 News Vat Lined Chip	+ 6.50	+ 4.00	+ 1.50
3 Filled News	+ 8.00	+ 5.50	+ 3.00
4 Solid news (* $3 Gauge List)	+10.00	+ 7.50	+ 5.00
5 White Vat Lined	+20.00	+17.50	+15.00
6 Mounting Board	+ 8.00	+ 5.50	+ 3.00
7 Tube & Can Stock	+ 7.50	+ 5.00	+ 2.50
Folding Boards ($2 Gauge—Reg. 50's to 90's inc.)			
8 Semi-Bending & Creasing Chip	— 7.50	—10.00	—12.50
9 Full Bending Chip	— 5.00	— 7.50	—10.00
10 Single Manila Lined (Junte-Mist Gray, Tan, Green Lined & Suit Box)	+ 5.00	+ 2.50	Base
11 Bleached Manila Lined	+ 7.50	+ 5.00	+ 2.50
12 White Patent Coated News ($6 Gauge List)			
$1 Single White .020 and heavier	+ 5.00	+ 2.50	Base
$1 " " .018	+ 7.50	+ 5.00	+ 2.50
$1 " " .016	+10.00	+ 7.50	+ 5.00
$1 " " .015	+12.50	+10.00	+ 7.50
$1 " " .014	+15.00	+12.50	+10.00
$1 Double " .020 and heavier	+27.50	+25.00	+22.50
$1 " " .018	+32.50	+30.00	+27.50
$1 " " .016	+37.50	+35.00	+32.50
$1 " " .015	+40.00	+37.50	+35.00
$1 " " .014	+42.50	+40.00	+37.50

Additional Differentials Applying to White Patent Coated

Manila Back Non Bender	+10.00
Manila Back Bender	+15.00

Added Differentials Applying to All Grades

Regular 35's to 39's	+ 5.00
Regular 40's to 49's	+ 2.50
Regular 91's to 100's	+ 2.50
Regular 101's to 120's	+ 5.00
Silicating (Per Side)	+ 2.50
Pasting 35's to 15's	+ 7.50
Pasting 14's to ½" Thick	+12.50
Trimming (Per Side)	+ 1.00
Gloss Ink	+ 2.50

Territorial, specialty and other boxboard prices furnished on inquiry will be in line with company's past practice on differentials.

This Office is now undertaking a study of the price structure of cylinder kraft board with a view to recommending differentials to apply to this class of merchandise.

In order to give full effect to this agreement and to aid in stabilizing conditions in the paperboard industry, announcement of the agreement is being sent to each producer and consumer of these products. In addition, all those in the industry are being asked to report to the Office of Price Administration and Civilian Supply any sale or offer for the sale of the board mentioned above, of which they have knowledge, at prices in excess of those covered by the agreement. The receipt of such information will enable this Office to take appropriate action.

If your company was not present at this meeting, will you please communicate immediately with this Office indicating your acceptance of the above outlined prices and differentials.—Leon Henderson, Administrator.

To Reopen Flintkote Mill

ROCKTON, Ill., August 11, 1941—The Rockton paper mill which has been closed for several years, will reopen in the next six weeks. Virgil Batterman of Chicago Heights will manage the plant. The mill is to be operated by the Flintkote company, whose main offices are in New York City. The company also has a plant at Chicago Heights and the product manufactured here will be shipped to that place where it will be used in the production of rolled roofing, shingles and similar insulating products manufactured by the Flintkote company.

Price Trend of Newsprint Paper Uncertain

Canadian Newsprint Manufacturers Are Soon Expected To Announce Prices For Last Quarter of Current Year—Rising Costs Cast Doubt On Prospect of Maintaining Current Price of $50 A Ton.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., August 11, 1941—Canadian newsprint companies are expected to announce soon prices of newsprint for the last quarter of 1941, but at this date there is no official indication of a change in policy. However, a number of factors have come into the picture that would make it unwise to assume that the present prices will obtain until the end of the year.

Newsprint delivered in New York since 1938 has been sold on the basis of $50 a ton and the same price applies to Chicago sales and elsewhere with respect to water-borne newsprint supplies, with slightly higher prices for other points inland. So that if the prices are not changed for the final quarter of the present year, publishers receiving supplies through these ports will have enjoyed four full years of newsprint price stability.

Manufacturers' Policy a Check on High Prices

There was a sharp increase in demand for Canadian newsprint immediately after the beginning of the present war, with some apprehension concerning the future and no little fear of a runaway market. That situation was cleared up by a joint announcement of the industry, through the Newsprint Association of Canada, that the policy of the manufacturers would be to keep a close check on factors calculated to increase prices so that increases would be avoided as long as that was possible.

Since that time several announcements have been made but the selling price to American publishers, who take approximately 80% of the Canadian output, has remained unchanged. Canadian manufacturers have been able to hold the prices at $50 a ton, in spite of mounting costs in several directions, chiefly because of the premium of 10% received on American funds. This unearned income has been shrinking, however, until there is very little of it being retained by the Canadian newsprint manufacturer.

At the end of the second quarter there was considerable expectancy that there might be an upward swing of prices to keep pace with the general trend of costs. Then International Paper Co. announced that the $50 a ton price would be continued for the present, but President R. J. Cullen made it clear that the future was still uncertain. He said that when the price was extended for the first quarter of the year, increased volume of production was largely responsible for the company's ability to absorb higher costs of labor and material, but that increasing costs constituted a problem which would appear to indicate a re-consideration of the price policy for the final quarter of the year.

In addition to higher wages that have to be paid to obtain and hold help and advancing material costs, taxes that are already high are likely to go still higher and there does not seem to be anything to indicate any gain in volume of business available.

No Gain in Manufacturers' Profits Likely

A redeeming feature, however, is, or was, that the industry expected to sell a larger volume of newsprint this year to United States publishers, the premium on which would compensate somewhat for shrinking sales volume in other quarters. Overseas business has slipped badly and will very likely show still further decreases before the end of the current year. So that taking the industry as a whole, Canadian newsprint manufacturers did not expect to show an increase in its dollar income this year.

With respect to production it may be said that in the last four months of 1939 production of newsprint was 122,000 tons greater than in a similar period of 1938. Again in 1940 production moved up to 3.4 million tons, the second largest ever produced by the industry. More important was the fact that sales to United States publishers advanced substantially, shipments last year being 400,326 tons greater than in 1939. On top of that there was a marked rise in shipments to overseas countries amounting to 179,588 tons.

The situation is undergoing a change, however, in respect to volume, and this will be more pronounced in the final quarter of the year. Shipments overseas during the first half of the current year declined about a third from those of a similar period last year. Deliveries to American publishers were better by 50,644 tons. On the whole, production this year is slightly lower than in 1940, as also are shipments.

Future Newsprint Prices in Doubt

Manufacturers have depended upon the rise in production to keep down costs, ever since the war began, and thus permit the maintenance of the $50 price. The premium of 10% on United States funds figures out at approximately $4 a ton, but increased taxes, wages and material costs have almost wiped out this little bit of velvet. Now that volume of production has not only ceased to climb, but begins to show an actual decline, manufacturers must look closely at their price structure. At the moment, it is impossible to forecast what will happen regarding the price policy. Some favor moderate adjustment upward. Others feel that the price should be retained at $50 a ton as long as possible, and, at least for the final quarter of the current year.

It may be repeated that there does not appear to be anything on the horizon to indicate an increase in production volume, and without added volume the present price will not long sustain the ever increasing costs. Whatever happens, however, the present good policy of co-operation and understanding between the newsprint manufacturers and the publishers will continue. Over the last few years there has been developed a keener appreciation on the part of newsprint manufacturers of the difficulties of the publishers and a better understanding by the publishers of the problems of the newsprint industry. This improved relationship will be helpful in making whatever adjustments are necessary in the price of Canadian newsprint.

News of the Wisconsin Paper Industry

Menasha Division of Marathon Paper Mills and Other Leading Paper Manufacturers Hold Annual Outing For Their Employees— Public Service Commission Approves Bond Issue — Other News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., August 11, 1941—Safety exhibits featured the annual family outing of the Menasha Products division of the Marathon Paper Mills Company, Menasha, Wis., which drew an attendance of more than 3,600 to Smith Park Saturday, August 2. These depicted safety methods at the mill, as well as those dealing with highway safety by the county and state highway departments.

Roy Sund, vice-president and production manager, was the speaker of the day. A baseball game and various contests and games were held, with a large list of prizes for the winners.

Paper Mills Hold Outings

The seventh annual picnic of the Gilbert Paper Company, Menasha, Wis., at Smith Park Sunday, August 3, was attended by 1,284 employees and their families. The afternoon and evening were occupied by a series of contests for adults and children, for which prizes were given. A baseball game was played between a team of office workers and foremen and a mill pickup team, with a score of 12 to 8 in favor of the former. An amateur contest was one of the most entertaining and amusing features. Chet Manser of Appleton, Wis., a professional clown, helped to enliven the occasion.

More than 200 engineers and officials of the Kimberly-Clark Corporation, Neenah, Wis., will hold a picnic at Lakeview Park, Neenah, Wednesday afternoon, August 13. The outing is sponsored by the Kimberly-Clark Engineers Club, and all of the Kimberly-Clark mills are to be represented. The Main Office Tigers and the Kimberly All-Stars will play a baseball game. The Lakeview mill band will present a concert in the evening.

Consolidated "Buys Out" Ball Game

The Consolidated Water Power and Paper Company cooperated with the four labor unions represented in the mills at Wisconsin Rapids and Biron, Wis., to "buy out" Witter athletic park for a ball game Sunday afternoon, August 10. This year each of the 1,800 employees was furnished three free tickets to see the Wisconsin Rapids and Oshkosh, Wis. teams of the Wisconsin State League play a "Consolidated Day" game. A special intertainment program was arranged prior to the game, witnessed by more than 5,000. Leo J. Barrette, personnel manager, was in charge of the arrangements, assisted by Lester Whipperman and the electricians, Ed. Gilbertson of the papermakers, Ole Stensberg, head of the Pulp and Sulphite Workers, and Peter Schneider of the machinists.

Hefti-Sawyer Nuptials

Hans Hefti, plant engineer at the Appleton Coated Paper Company, Appleton, Wis., and Miss Frances Sawyer of South Milwaukee, Wis., were married Saturday afternoon, August 2, at the First Presbyterian Church at Neenah, Wis. They are en route on a 15-day honeymoon trip to Glacier National Park and other points in the west and will reside at 1102 E. Forest Avenue, Neenah. The bride was formerly file supervisor for the Kimberly-Clark Corporation at Neenah.

Approval Given to Bond Issue

Approval has been given by the Wisconsin Public Service Commission at Madison, Wis., to the Wisconsin Power and Light Company to issue $30,000,000 in bonds and $3,000,000 in serial unsecured notes for refunding of $33,000,000 of 30-year first mortgage 4% bonds now outstanding. Approval is also sought from the SEC before the securities can be sold.

Short term serial notes are to be used to reduce the mortgage from $33,000,000 to $30,000,000. The Northwestern Mutual Insurance Company of Milwaukee, Wis., has agreed to take $2,500,000 of the notes due 1949 to 1951, and the Continental Illinois National Bank and Trust Company will take $500,000 of the serial notes bearing interest at 2¼ and 2¾%, and maturing February 1, 1942 and August 1, 1948.

Industrial Plastics

The notable progress of plastics within the last few years and the wide utilization of bleached wood cellulose, is presented in "Industrial Plastics", by Herbert R. Simonds, published by the Pitman Publishing Corporation, 2 West 45th street, New York, at $4.50 a copy.

This is a second edition of the book, which comprehensively covers the subject in a concise and readily understandable manner. The history, basic materials, most important plastic materials, molding practice, fabrication methods, physical properties, equipment required and various important industrial applications are clearly presented.

This text also considers design, and informs the reader of the progress of plastics in foreign countries Concluding chapters include formulae, types and trade names.

Brookville Mill Sold by Rankin

The mill at Brookville, Ind., owned by the Hinde & Dauch Paper Company, has been sold by Mansel L. Rankin of Sandusky, Ohio, paper and pulp mill broker. The sale involved the complete holdings of Hinde & Dauch at Brookville, consisting of land, buildings, machinery, and equipment, also the outstanding capital stock of the Brookville and Metamora Hydraulic Company. The name of the new owners has not been announced, but it is understood that they are well and favorably known in the industry.

The mill is equipped with two paper machines which will be started up as soon as reconditioning is completed. The negotiations were conducted by Mr. Rankin with officers of the Hinde & Dauch Paper Company at Sandusky.

Government Paper Bids and Awards

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 12, 1941—Government Printing Office has received the following bids for 200,000 sheets of 22 x 25 white railroad board; Barton, Duer & Koch Paper Company, $33.90 per M sheets; Whitaker Paper Company, $68.60; Virginia Paper Company, $38.40; Old Dominion Paper Company, $34.249; Bradner Smith & Company, $34.30; Stanford Paper Company, $34.30; R. P. Andrews Paper Company, $34.67; Marquette Paper Company, $34.25; Paper Corp. of U.S., $36.40.

For 1,000 sheets of 20½ x 26 blue rhododendron cover paper: R. P. Andrews Paper Company, $32.15; Stanford Paper Company, $33.15; and Barton, Duer & Koch Paper Company, $33.15.

For 14,580 pounds of 24 x 30 blue tag board: Barton, Duer & Koch Paper Company, 9 cents; and Paper Corp. of U.S., 10.8 cents.

For 78,390 pounds of 32 x 52½ wood manila paper: Mudge Paper Company, 4.75, 4.95, and 5.625 cents; Marquette Paper Company, 4.75 cents; Perkins-Goodwin Company, 5.625 cents; Barton, Duer & Koch Paper Company, 5.6 cents; and Cauthorne Paper Company, 4.75 cents.

For 100,000 sheets of 22 x 35 white railroad board: Barton, Duer & Koch Paper Company, $30.75 per M sheets; Mudge Paper Company, $34.45; Old Dominion Paper Company, $34.39; Stanford Paper Company, $30.50; Paper Corp. of U.S., $38.60; and Virginia Paper Company, $36.17.

For 49,250 pounds of 38 x 48½ blue mimeograph paper: Cauthorne Paper Company, 7.41 cents; and Marquette Paper Company, 8.9 cents.

Barton, Duer & Koch Paper Company has been awarded the contract for furnishing the Government Printing Office with 200,000 sheets of 22 x 28, 8 ply white railroad board at $33.90 per M sheets, bids for which were received on July 30. Other paper awards announced by the Government Printing Office include the following:

Old Dominion Paper Company will furnish 37,500 pounds of 38 x 48 lithograph finish map paper at 10.248 cents; Graham Paper Company will furnish 16,200 pounds 50% rag, 14 x 20 same at 13.40 cents. Same firm will also furnish 4,600 pounds, 50% rag, 18 x 20 same at 13.40 cents. Paper Corp. of U.S. will furnish 278,500 pounds of 39⅜ x 56 white antique paper at 6.43 cents. Bids for these items were received on July 25.

Marquette Paper Company will furnish 80,000 pounds of white sulphite bond paper in 32 inch rolls at 7.37 cents. Mudge Paper Company will furnish 40,000 pounds of 25% rag, white bond paper in 34 inch rolls at 15.7 cents and 40,000 pounds same in 32 inch rolls at 15.7 cents. R. P. Andrews Paper Company will furnish 40,000 pounds same in 32 inch rolls at 12.1 cent. Also same firm will furnish 40,000 pounds same in 34 inch rolls at 12.19 cents and 40,000 pounds same in 40 inch rolls at 12.25 cents and same firm will also furnish 40,000 pounds same in 48 inch rolls at 12.25 cents. Paper Corp. of U. S. will also furnish 154,000 pounds of 38 x 48 white offset paper at 7.625 cents. Paper Corp. of U. S. will furnish the following: 320,000 pounds of sulphite writing paper in 30 inch rolls, No. 26, yellow, white, salmon, pink, green, buff and blue at 7.78 cents. Paper Corporation of U.S. will also furnish 160,000 pounds of 50% rag, manifold paper in 24 inch rolls, white, yellow and blue at 8.25 cents, 9 cents and 8.78 cents. Barton, Duer & Koch Paper will furnish 780 pounds of 26 x 40 buff antique cover paper at 18.5 cents. Stanford Paper Company will furnish 80,000 pounds of white sulphite writing paper in 48 inch rolls at 7.10 cents and same firm will also furnish 160,000 pounds same in 32 inch rolls at 7.10 cents. Marquette Paper Company will furnish 160,000 pounds same at 7.12 cents and 160,000 pounds same in 40 inch rolls at 7.12 cents. R. P. Andrews Paper Company will furnish 100,000 pounds of same in 34 inch rolls at 6.54 cents. Bids for all of these items were received on July 23.

Marquette Paper Company will furnish 52,704 pounds of 45 x 64½ inch offset book paper at 7.42 cents. Same firm will also furnish 55,800 pounds of same in 67½ inch rolls at 8 cents. Stanford Paper Company will furnish 52,327 pounds of 34 x 53¾ white ripple finish cover paper at 11.08 cents. Stanford Paper Company will furnish 55,352 pounds of 22 x 34 white plate finish cover paper at 10.62 cents. Bids for these items were received on July 22.

Barton, Duer & Koch Paper Company will furnish 10,000 sheets of 22 x 28 green railroad board at $32.15 per M sheets. Whitaker Paper Company will furnish 37,500 pounds of 26 x 38 newsboard at 2.36 cents. Bids for these items were received on July 21.

R. P. Andrews Paper Company will furnish 122,878 pounds of 14 x 19 white offset book paper at 7.65 cents, and Paper Corp. of U.S. will furnish 20,542 pounds of 24¼ x 35 green calendered tag board at 9.75 cents. Bids for these items were received on July 18.

R. P. Andrews Paper Company will furnish 325,000 pounds of 37 x 57 poster paper at 6.45 cents and Continental Paper Company will furnish 2,000,000 pounds of 40 x 60 chip board at 2.375 cents. Bids for these items were received on July 16.

Mathers-Lamm Paper Company will furnish 15,000 sheets of 22 x 28 gray photo mount board at $37.11 per M sheets bids for which were received on July 14.

Argentine Gets Canadian Newsprint

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 13, 1941—Newsprint from Canada and Newfoundland largely supplemented that from northern European countries in the Argentine market during 1940. Imports of newsprint into Argentina in that year totaled 126,547 metric tons compared with 146,191 tons in 1939 and 126,591 tons in 1938. In the latter year the two North American countries named supplied Argentina with 91,344 tons of newsprint, or slightly more than 72 per cent of its total importation. In 1939, Argentina drew 76 per cent of its newsprint requirements from Northern Europe, with Finland as the principal supplier, and only 23.5 per cent from Canada and Newfoundland.

There is no Argentina production of newsprint but there is a production averaging about 12,000 to 14,000 metric tons annually of a cheap wood pulp paper used principally for wrapping and not unlike newsprint in appearance.

LANGSTON

SLITTERS

and Roll Winders

THERE is a type and size for every job in mill, finishing room or converting plant. Type AA shown above, is built 40", 50", 60" and 72" wide for 28" or 36" diameters; or up to 40" diameter if required.

Speeds: up to 1500 feet per minute.

Designed and constructed to stand up under heavy service and to deliver clean cut rolls of uniform density from all grades of paper and paperboard.

All Langston's incorporate the best slitting and winding principles . . . *Shear Cut* and *Surface* or *Drum Winding*.

Ask for Bulletin 132 describing the complete line.

SAMUEL M. LANGSTON COMPANY, Camden, New Jersey

Restrain Bogus Paper Makers

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 13, 1941—The Federal Trade Commission issued a complaint charging a manufacturer and three distributors of "bogus" paper; seven operators of stay die cutting businesses; the Stay Die Cutters Association, Inc., a trade association, and Sidney Haberman, its executive secretary, all of New York, with a combination and conspiracy to restrain competition and trade in the sale of "bogus" paper.

"Bogus" paper, according to the complaint, is a cheap flexible paper cut by dies into stays of various shapes and sizes and is used chiefly in lining handbags and pocketbooks.

Respondents in the case are: Newton Paper Mills, Holyoke, Mass., manufacturer, which, according to the complaint, has maintained a dominant position approaching monopoly in the bogus paper field; Samuel Fuchs, trading as Henry Fuchs and Son; Solomon J. Salwen, Morris Ruben and Sidney Salwen, trading as Joe Salwen Company; and Salwen Paper Company, all distributors; Stay Die Cutters Association, Inc., and Sidney Haberman, its executive secretary; Art Metal Die Manufacturers, Die-Craft Cutting Company, Inc., R. & C. Mounting and Finishing Co., New York Leather Embossing Company, Harry Litky, Jennie Lansky, who trades as Lansky Die Cutting Company, and Morris Silverberg, trading as F. & S. Die Cutting Company, all engaged in the stay die cutting business.

The complaint alleges that, pursuant to their combination and conspiracy to restrain competition and trade in the sale of bogus paper, either in its original or converted form, the respondent die cutters (1) organized the Stay Die Cutters Association, Inc. to assist them in carrying out the combination and conspiracy; (2) refuse to solicit or sell their products to customers of other association members under penalties prescribed and assessed by the association; (3) through the respondent association, allocate among themselves all new and prospective customers; (4) furnish the respondent association with lists of their customers and the name of any customer delinquent in accounts; (5) refuse to sell any customer who has become delinquent in his accounts with any other member; (6) restrict their purchases of bogus paper to the respondent manufacturer and distributors; and (7) under association auspices, hold meetings at which they fix and establish prices, terms, discounts and charges for their respective products.

According to the complaint, the respondent manufacturer and distributors, pursuant to their agreement and combination, refuse to sell to any die cutter not an association member on the same terms and conditions at which they sell to members, and the respondent die cutters by holding meetings of members; by circulating and distributing prices, discounts and charges fixed and established by the respondent die cutters; by circulating and distributing delinquent customer lists; and also by prescribing and assessing penalties for violation of the understandings and agreements.

The complaint alleges that the respondents' combination and conspiracy has had the effect, among other things, of enabling the respondents to control and substantially monopolize the bogus paper business; of preventing competitors and prospective competitors from entering into the business, and of fixing, maintaining and enhancing prices.

The complaint grants the respondents 20 days for filing answer.

To Conserve Waste Paper

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., August 11, 1941—Residents of Chester, Pa., are being called upon to save their waste paper and donate it to the cause of national defense. At a meeting of the Delaware County Chamber of Commerce a few days ago, J. L. Ober, assistant to Raymond C. Mateer, vice-president of the Scott Paper Company, and representing Mr. Mateer, who is a member of the directorate of the Chamber of Commerce, told the board of directors that a paper shortage was imminent and asked that campaigns be sponsored for the collection of waste. William F. Delehanty, secretary of the group, has written to Secretary James, of the Department of Commerce at Harrisburg, Pa., asking that such drives be promoted throughout the State.

"We were amazed to learn," Mr. Delehanty said in his letter, "that one company, such as Scott, spends annually $1,000,000 for paper boxes and cartons, and that this expenditure already has been increased 30 because of the dearth of paper and for the further reason that the army and navy have begun to displace wooden boxes with paper cartons to ship ammunition. Such use by the Government takes the product out of the country entirely, thus eliminating its reuse here, contrary to the customary procedure of using stock paper over and over again in the manufacture of various commodities."

Mr. Delehanty said it was planned to ask the public to tie up waste paper in bundles, and either dispose of it through sale or by collection, and to supplement this method of having Scouts and other groups collect scrap paper to be sold through regular channels to dealers.

July Newsprint Statistics

Production of newsprint in Canada during July 1941 amounted to 293,483 tons and shipments to 300,236 tons according to the News Print Service Bureau. Production in the United States was 83,199 tons and shipments 84,641 tons, making a total United States and Canadian news print production of 376,682 tons and shipments of 384,877 tons. During July, 29,292 tons of news print were made in Newfoundland, so that the total North American production for the month amounted to 405,974 tons. Total production in July 1940 was 445,287 tons.

The Canadian mills produced 60,059 tons less in the first seven months of 1941 than in the first seven months of 1940, which was a decrease of three per cent. The output in the United States was 6,745 tons or one and one tenth per cent more than in the first seven months of 1940; in Newfoundland production was 3,484 tons or one and seven tenths per cent more, making a net decrease of 49,830 tons, or one and eight tenths per cent less than in the first seven months of 1940.

Stocks of news print paper at the end of July were 159,145 tons at Canadian mills and 10,623 tons at United States mills, making a combined total of 169,768 tons compared with 177,963 tons on June 30, 1941, and 189,643 tons at the end of July 1940.

Howard Wallingford Speaks on Paper

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 11, 1941—Howard Wallingford, New England sales manager for the Tileston & Hollingsworth Company recently addressed the Boston Club of Printing House Craftsmen on "New Developments in Paper Making". Mr. Wallingford spoke in part as follows:

"With some few exceptions recent improvements in paper are not spectacular or as easily visualized as are the improvements in machinery and supplies. We look with amazement on the new fast presses that are being installed. They certainly are a challenge to the papermakers.

"This alone points to a form of improvement in papermaking; the difference between the paper that was called a normal delivery in the days of hand-fed presses, when any torn or imperfect sheets were thrown out by the feeder, and the pile of stock, every sheet a perfect one, that we are now expected to deliver, on account of automatic feeding at high speed.

"Two basic improvements in papermaking are the stronger and cleaner pulps that are now produced, and the increased production that we now have, due to better papermaking machinery.

"The better pulp evidences itself in stronger, whiter, cleaner paper. In the collection of paper samples that I gathered when I was a papermaker there are few that would pass muster today.

"The improved machinery is responsible for more uniform, better-formed paper with all factors more closely controlled (such as finish), made at a speed that is at least 50% to 100% faster than twenty-five years ago. This improved production enables us to give the printer a far better value for his money, allowing him to get more of the customers' business by encouraging increased advertising and printing, and to do a better and more economical job on our papers."

Most Timber in Private Ownership

Who owns the timber in the United States, that is, the timber which is mature and ready to cut?—was asked of Professor Raymond J. Hoyle of the New York State College of Forestry, Syracuse University.

Professor Hoyle said, "The latest classification of ownership of stands of saw timber in the United States was in 1938 and that showed that there were altogether 1,763 billion board feet. Part of this is divided between the Forest Service, or what is called the National Forest, and the Indian reservations, the reservations having only 39 billion board feet."

He continued, "There are some 71 billion feet under Government control not included in the National Forest nor in the Indian reservations. States, counties and municipalities own 59 billion and private ownership, which is by far the largest, is figured at 1,026 billion feet. Out of this the farm woodland owner has 221 billion and the industrial owner has 805 billion. This large industrial ownership, to some of the industires, has been a great handicap because of the enormous amount of taxes which must be paid on the land.

"Therefore, they are endeavoring to cut and sell their timber as rapidly as possible. At present, there is an effort to control the cutting on privately-owned woodlands to insure a continuous production of timber. This question is being debated by the Federal authorities and private owners at the present time.

"There should, however, be some protection for the private owner outside of the industry, such as the farmer, who should avail himself of the services of a professionally trained forester."

National Letter Writing Week

During National Letter Writing Week, October 5 to 11, 1941, best displays of stationery and posters in windows will be awarded cash prizes. Details of the campaign are stated in the printed enclosure. All stationery retailers are eligible for participation. A total of 108 cash awards are offered for photographs of best windows. Letter writing has been increased as a result of previous campaigns and dealers' sales have likewise improved.

In 1939, and again in 1940, National Letter Writing Week had window prize cash contests. They were successful in bringing in photographs from all over the country. Posters that must be displayed in all windows in order to make the photographs eligible for entry in the campaign, are obtainable free from sponsoring manufacturers whose names are shown below and whose addresses are shown on the attached printed information. Dealers can obtain posters from any of these manufacturers.

The Paper Stationery and Tablet Manufacturers Association, Inc., 527 Fifth avenue, New York, N. Y., is the campaign office. The following stationery manufacturers are sponsors of the campaign:

American Papeterie Company, J. C. Blair Company, Eaton Paper Corporation, George W. Fox Paper Company, Kalamazoo Stationery Company, Lakeside Central Company, Mid West Paper and Envelope Company, Montag Brothers, Inc.; Novelart Manufacturing Company, Puritan Stationery Company, Sangamon Company, Southern Central Company, Southwest Tablet Manufacturing Company, Springfield Photo Mount Company, United States Envelope Company, Marcus Ward, Inc.; Wesley & Winter, Inc.; Western Tablet and Stationery Company, White & Wyckoff Manufacturing Company, and Arthur E. Wilson & Co.

Chain Belt Co. Changes

A number of changes have just been announced by Chain Belt Company of Milwaukee. W. B. Marshall who has been assistant sales manager of the Conveying and Engineering Products Division of the company has been made sales manager of that division. Mr. Marshall has been with the company since 1920. Besides being assistant sales manager, he has been in charge of the development and sales of sanitation equipment and has also had experience in field sales work. Mr. Marshall graduated from Sheffield Scientific School of Yale University in 1921.

Another change brings B. E. Sivyer former San Francisco branch manager to Milwaukee as assistant sales manager of the Chain Belt and Transmission Division. Mr. Sivyer has been with Chain Belt Company for ten years and of that time spent four and a half years in San Francisco. He attended the University of Wisconsin.

Replacing Mr. Sivyer as branch manager at San Francisco is S. Y. Warner who joined Chain Belt Company in 1930 the same year he graduated from Sheffield Scientific School of Yale University. Mr. Warner has recently been in the company's Los Angeles office and the California oil fields.

When OPM

Production Men Throughout Industry Demand and Rely on the Highest Quality Lubricants for Their Machines. The Tremendous Sales Increase of Gargoyle Lubricants Proves This to be True.

CALL IN **Socony-Vacuum fo**

Says "RUSH"

INDUSTRY'S MARCHING ORDERS are "double-quick"! Machine replacements and parts are hard to get. So, to assure continuous, high-speed production, operating men agree on this point:

Today—there can be no compromise with the quality of industrial lubrication!

When men in industry take this position, what brand do they turn to? *They turn to Gargoyle Lubricants!* The record speaks for itself!

And that record gives you an answer to *your* No. 1 problem. Protect *your* production with the world's No. 1 line of industrial lubricants —Gargoyle Oils and Greases.

• • •

SOCONY-VACUUM OIL COMPANY, INC. · Standard Oil of New York Div. · White Star Div. · Lubrite Div. · Chicago Div. White Eagle Div. · Wadhams Div. · Southeastern Div. (Baltimore) · Magnolia Petroleum Co. · General Petroleum Corporation of California.

LOOK AT THE RECORD. IN TIMES LIKE THESE, INDUSTRY DEMANDS QUALITY. LET THIS CHART BE YOUR GUIDE, TOO

Chart shows percent of Gargoyle Lubricants sales increase compared to U.S. Industrial Activity—May, 1940-May, 1941

LE LUBRICANTS

GARGOYLE Lubricants

*SOURCE—Business Week Index of Industrial Activity.

"Correct Lubrication"

New TAPPI Members

The executive committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership:

William L. Abramowitz, director of research, Industrial Inventions, Inc., Peabody, Mass., a 1935 graduate of the Massachusetts Institute of Technology and formerly with the National Oil Products Company, Harrison, N. J.

Nicholas J. Barbieri, laboratory technician, News Syndicate Company, Inc., New York, N. Y., a 1934 graduate of New York University.

J. E. Bounds, pulp mill superintendent, St. Joe Paper Co., Port St. Joe, Fla., and formerly with Southern Kraft Corporation.

George S. Carroll, general superintendent, Monadnock Paper Mills, Bennington, N. H., attended Amherst College and formerly with the American Writing Paper Company, Holyoke, Mass.

Ralph Casselman, group head, Bakelite Corporation, Bloomfield, N. J., a 1930 graduate of the University of Wisconsin.

Harold Y. Charbonnier, student, Institute of Paper Chemistry, Appleton, Wis., a 1936 graduate of Syracuse University and formerly with E. I. du Pont de Nemours, Buffalo, N. Y.

Leonard J. Coughlin, assistant chemist, Dexter Sulphite Pulp and Paper Company, Dexter, N. Y.

Henry H. Derr, junior engineer, Scott Paper Company, Chester, Pa., a 1939 graduate of Haverford College.

Durward B. Geffken, technical department, National Paper Products Company, Carthage, N. Y., a 1941 graduate of the New York State College of Forestry.

Edwin H. Graves, resident manager, Halifax Paper Company, Inc., Roanoke Rapids, N. C., a 1933 graduate of the Virginia Polytechnic Institute and formerly with the Albemarle Paper Manufacturing Company, Richmond, Va.

Harold Horwitz, chemist, Knowlton Brothers, Watertown, N. Y., a 1939 graduate of St. Lawrence University and formerly with the Union Bag and Paper Corporation, Hudson Falls, N. Y.

William G. Hulbert, Jr., student, Institute of Paper Chemistry, Appleton, Wis., a 1938 graduate of Stanford University.

Raphael Katzen, lignin research fellow, Polytechnic Institute of Brooklyn, Brooklyn, N. Y., formerly with the Northwood Chemical Company, Phelps, Wis.

William J. Plank, assistant manager, Jos. J. Plank & Co., Appleton, Wis., attended Marquette University.

Cover C. Porter, assistant technical director, Southland Paper Mills, Inc., Lufkin, Texas, a 1936 graduate of A. & M. College and formerly with the St. Joe Paper Company, St. Joe, Fla.

Joseph K. Post, engineer, American Viscose Company, Lewiston, Pa., attended Columbia University and formerly with Laurentide Paper Company, Grand Mere, P. Q.

H. A. Schmitz, Jr., sales engineer, A. O. Smith Corporation, Milwaukee, Wis., a 1915 graduate of Marquette University.

Charles J. Stockwell, assistant to vice president, C. A. Reed Company, Williamsport, Pa., a 1936 graduate of Dickinson Junior College.

Kurt Suter, assistant paper mill superintendent, Union Bag and Paper Corporation, Savannah, Ga., has been transferred from the Junior to the Active grade.

Dwight J. Thomson, personnel department, Champion Paper and Fibre Company, Hamilton, Ohio, a 1938 graduate of Yale University.

TAPPI Nominating Committee Reports

The nominating committee of the Technical Association of the Pulp and Paper Industry consisting of A. H. Johnson, chairman, T. M. Chemerys, E. P. Ingalls, E. G. Ham and W. F. Hathaway, has reported that the following have agreed to be candidates for officers and executive committee, to be voted on this fall:

President (one year)—Ralph A. Hayward, president, Kalamazoo Vegetable Parchment Company, Kalamazoo, Mich.

Vice President (one year)—Vance P. Edwards, engineer, International Paper Company, Palmer, N. Y.

Executive Committeemen (three years)—Worthen E. Brawn, general superintendent, Pejepscot Paper Company, Brunswick, Maine; O. P. Gephart, Superintendent, Miamisburg Paper Company, Miamisburg, Ohio; Charles R. Seaborne, vice president, treasurer and general superintendent, Thilmany Pulp and Paper Company, Kaukauna, Wis., and Ralph A. Wertheimer, vice president and resident manager, Longview Fibre Company, Longview, Wash.

Article VII, Section 3, TAPPI Constitution—"Other nominations, if signed by at least 25 voting members may be submitted to the secretary in writing on or before December 20; and if each nomination so made is accepted in writing by the nominee, the name shall be placed on the official ballot.

Wood Pulp Statistics

The 1941 edition of "Wood Pulp Statistics" has just been published by The United States Pulp Producers Association, Oliver M. Porter, executive director, 122 East 42nd street, New York. The price is $2 a copy.

Detailed statistics on the United States pulp industry are given, with a summary of foreign pulp statistics as were available prior to September, 1939. The foreword explains that few foreign countries have continued to release official statistics since 1940.

The book is provided with numerous charts and gives the latest, authoritative statistics on domestic wood pulp and paper production, consumption, imports and exports, from 1899 to 1940. Similar statistics are presented on the Canadian wood pulp industry.

The statistics show the increased wood pulp capacity of the United States for 1941 to aggregate an estimated 9,594,161 short tons, with production computed on a 310 day basis. This compares with a total of 9,556,915 tons for 1940, the next highest year.

Estimates for 1941 indicate that 57,374 tons less of bleached sulphite will be produced, with substantial increases in the output of unbleached sulphite and bleached and unbleached sulphate pulps.

The data on world rayon production includes yarn and staple fiber output by countries from 1931 to 1940. Monthly prices on domestic and foreign wood pulp are included and the book is a valuable contribution of official data to all engaged and interested in the wood pulp industry.

Buy Paper Under Walsh-Healey Act

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, August 13, 1941—During the week ending July 26, government purchases of paper under the Walsh-Healey act totalled $759,227.84, with the following orders:

$87,387.36 worth of toilet tissue for War, QMC, New Jersey from Bogart Paper Company; $18,693.24 worth of toilet tissue for War, QMC, New Jersey from Hoberg Paper Mills; $20,629.36 worth of toilet tissue for War, QMC, New Jersey, from Oswego Tissue Mills; $13,402 worth of guide cards for War, QMC, New Jersey, from Dunleavy Company; $32,923.50 worth of wrapping paper for War, QMC, New Jersey, from W. L. Jones, Inc.; $233,440 worth of mimeograph paper for War, QMC, New Jersey, from Paper Corporation of U.S. $33,685.10 worth of shirt boards and stationery, for War, QMC, New Jersey, from Mathers-Lamm Paper Company; $10,240 worth of fiber board, insulating, for Panama Canal, from Sigfried Olsen Shipping Company; $98,000 worth of fuze container for War, Ord., Ohio. from Cleveland Container Company; $35,345.15 worth of manifold paper for War, QMC, New Jersey, from Import Paper Company; $47,500 worth of chip board for GPO from Continental Paper Company; $28,377.50 worth of book paper for GPO from Paper Corporation of U.S. and Fitchburg Paper Company; $39,680 worth of mimeograph paper for Agri. Purch. Sales & Traffic from Paper Corporation of U.S. and Blandin Paper Company; $20,962.50 worth of poster paper from GPO from R. P. Andrews Paper Company, and West Virginia Pulp and Paper Company; $10,720 worth of paper tape for War, Sig. Brooklyn, from Lynn Paper Products Manufacturing Company; $12,177.57 worth of mimeograph paper for War, QMC, Chicago, from Garrett Buchanan Company, and Jessup & Moore Paper Company; $16,104.56 worth of toilet tissue for War, QMC, New Jersey, from Statler Tissue Company.

Deliveries from Mills Curtailed

INDIANAPOLIS, Ind., August 11, 1941—Curtailment of deliveries from the mills has begun to present a serious problem to the paper trade in this area. Not that there is not business enough and to spare. The local trade virtually is swamped with orders, but filling them is another matter. Not all the increased number of orders is due entirely to the defense program, for the old reliable buyers who were in the market during the years before defense was thought of, want increasing amounts of paper. Prices, naturally, are at a high level, but there is no present indication of a runaway market.

Paper board manufacturers in this area are very busy and their production is much ahead of the same period a year ago. They report an ever increasing demand for board, a demand they are having difficulty in meeting. In many instances shipments are being prorated in order to give all customers as equitable a distribution as possible. Makers of paper containers of all kinds report a large business. Prices are firm to strong.

Cellophane and waxed papers also are in good demand, as are tissues. Bags and wrapping papers were moving nicely last week as retail volume moved upward with the general trend.

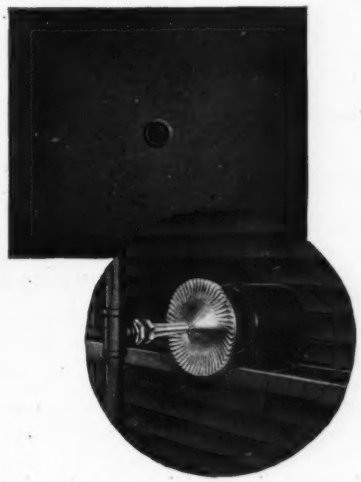
In some quarters there is reported an approaching shortage in building papers and roofing. Demand continued high last week and dealers say they are having increasing difficulty in keeping their stocks balanced and are unable to build up any reserves at all.

Fine paper demand continued heavy for all grades and local printers are working virtually to capacity and report a very large volume of work in prospect. Prices were firm to strong last week.

Paper stock firms here are having the best trade they have had in a long while. Warehouse stocks are depleted and mill demand for most grades of paper is heavy. Paper that can be converted into the box and building trade is particularly wanted. Rag demand also was good last week with prices firm.

Murray Air Washers

Designed to meet special mill requirements for cleaning air, Murray Air Washers embody the patented Murray spray wheel that does not clog with sediment or particles in the water, and is self-cleaning at all times, with the lowest maintenance cost. How uniformly the spray is distributed is shown in the illustration here.



The spray film can be produced fine, medium, or coarse to meet specific applications; there are no voids or openings in it. Each installation is engineered to the particular mill requirements for cleaning air. The Murray Air Washers are manufactured by D. J. Murray Manufacturing Company, Wausau, Wis.

Chicago Paper Men To Play Golf

The Chicago Paper Association plan to hold a golf outing on Thursday, September 11, at Kildeer Country Club, Prairie View, Ill. This is to be an all day affair for the members, their salesmen, and mill friends. Kildeer Country Club is a little west and north of Wheeling located on route 83. It sports a snappy club house and 19th hole, and has two wonderful golf courses.

Henry W. Borchardt of The Pilcher-Hamilton Company is Chairman of the committee in charge of this outing along with Joe Druth, Chippewa-Arrow Paper Company; Bob Knox, Knox & Schneider Paper Company; Bill Shapland, Fred Rentz Paper Company; Leo Altholtz, Inlander-Steindler Paper Company; Henry Weinstein, Western Bag & Paper Company; William Chukerman, J. Chukerman & Sons; Jake Lubin, Lubin Brothers Paper Company; Edw. Schwartz, Hanchett Paper Company.

Bob Knox, peppy secretary and treasurer of the association, is in charge of tickets and reservations. Phone Bob—MONroe 9300 or mail your reservation to him at 123 N. Sangamon street.

Obituary

James M. Miller

James M. Miller, 82, retired vice president and general manager of the former Reading Paper Mills, died early this month at his home, 445 West Oley Street, Reading, Pa.

He had been associated with the firm ever since he was 15 years old, when he learned the machinists' trade at the Tulpehocken Mill. In 1893 he was appointed superintendent of the old Packerack Mill, and two years later was advanced to general superintendent of the Reading Mills.

Born near Robesonia in 1859, Mr. Miller was a son of the late Daniel S. and Henrietta (Heck) Miller. He was educated in the public schools of Reading, and at the age of 15 started his apprenticeship as a machinist at the paper mill.

Mr. Miller was active in Masonic affairs, having earned the 32d degree. He was a vice president of the American Casualty Company for 37 years, until he retired in 1927, and was president of the ACCO Realty Company. In addition, he was at one time a director of the Schuylkill Valley Bank and the Berks County Trust Company. He was also the oldest member of the Keystone Fire Company.

Surviving are five children, all from his first marriage; J. Harvey of Reading; Julia, widow of Samuel Fry; Mabel M., and Beatrice E., all at home, and Stella K., wife of tthe Rev. Charles E. Rudy, Ashland; one brother, Harvey J. E. Miller, Reading; ten grandchildren, and eight great-grandchildren.

Edward P. Sherry

[FROM OUR REGULAR CORRESPONDENT]

MILWAUKEE, Wis., August 11, 1941—Edward P. Sherry, 70, a director and former president of the Flambeau Paper Company, Park Falls, Wis., died unexpectedly at Columbia hospital here Wednesday noon, August 6, following a heart attack the evening before at his home at 1977 N. Summit avenue. He was in apparent good health, and was stricken after his return from a theater.

Mr. Sherry was born at Neenah, Wis., April 12, 1871, the son of Henry Sherry, one of Wisconsin's pioneer lumbermen. He had resided in Milwaukee for the last 40 years, dividing his time between his real estate interests in Milwaukee and the Fox River Valley, and operation of the Flambeau Paper Company mill at Park Falls. He was also president of the Chippewa and Flambeau Improvement Company of Park Falls, owning and controlling water power in that vicinity.

Mr. Sherry was prominent in Milwaukee community affairs, having served as president of the Community Fund, chairman of Milwaukee County Red Cross, treasurer of the Board of Visiting Nurses, and trustee of Columbia hospital. He was an inveterate traveller, sometimes going to Europe twice a year. He had made at least a score of trans-Atlantic trips. He was a member of the University Club, the Milwaukee Country Club and the Psi Upsilon fraternity.

In 1900 Mr. Sherry was married to Laura Case of Prairie du Chien, Wis., whom he met while attending the University of Wisconsin. Mrs. Sherry was prominent for thirty years in the field of community theaters. Besides the widow, he is survived by one son, Avery, who was associated with him in business, and a grand-daughter, Kathleen.

Funeral services were held at the Weiss chapel here Friday morning, August 8, and the body was conveyed to Neenah, Wis. in the afternoon for burial at Oak Hill cemetery. Among the active pallbearers were F. J. Sensenbrenner, president of Kimberly-Clark Corporation, Neenah; J. C. Kimberly, president of the Neenah Paper Company, Neenah; John Bergstrom, president of the Bergstrom Paper Company, Neenah, and Lyall Pinkerton, John Kimberly and Frank E. Ballister. Honorary pallbearers included John P. Pulliam, Milwaukee, president of the Wisconsin Public Service Corporation and three officers of the Flambeau Paper Company, H. H. Coolidge, vice-president, J. H. Coy, vice-president, and J. W. D. Liginger, secretary-treasurer.

Charles T. Ramsden

BELOIT, Wis., August 11, 1941—Charles T. Ramsden, 71, vice-president of the Beloit Iron Works, died Sunday, August 3, after an illness of two months. He had been associated with the firm for 46 years, and was widely known in the development of paper mill machinery.

Mr. Ramsden was born at Mineral Point, Wis., and moved to Beloit when a young man. He was a member of the Technical Association of the Pulp and Paper Industry and the American Association of Pulp and Paper Mill Superintendents. He is survived by his widow and one son.

George H. Dyer

BOSTON, Mass., August 11, 1941—George H. Dyer, 75, salesman for the D. F. Munroe Company and formerly a bookkeeper for 20 years for the National Shawmut Bank, was found dead August 5 in his room in a Back Bay hotel.

Mr. Dyer was born in Gorham, Me., and came to Boston when a young man. He was popular and a faithful salesman.

A niece, Miss Clara P. Briggs, of 26 Kingston Road, Newton, Mass., is living.

Services were held August 7th at the Mt. Auburn Crematory Chapel, Cambridge, Mass.

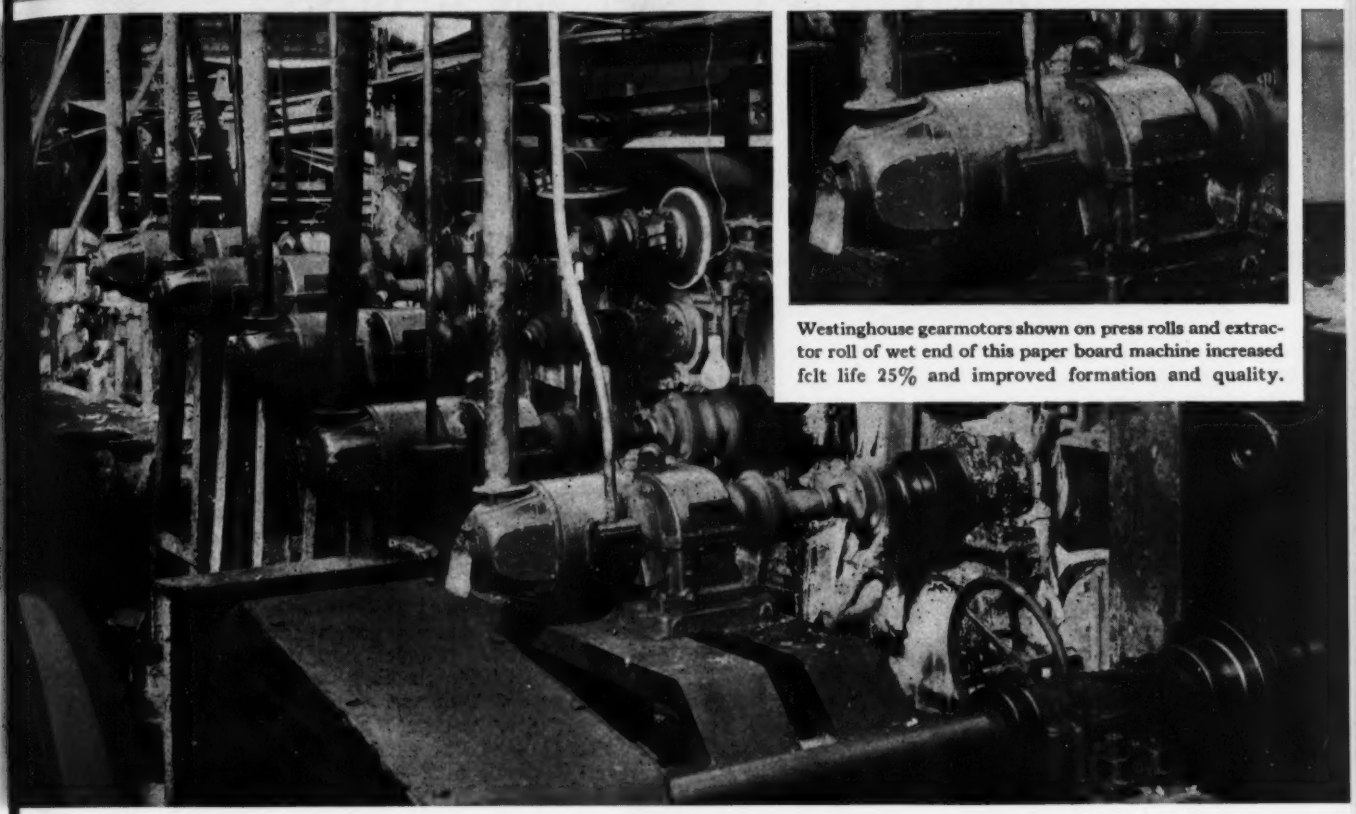
Isadore Zellerbach

Isadore Zellerbach, prominent West Coast industrialist, who was chairman of the executive committee of the Crown Zellerbach Corporation and chairman of the board of the Zellerbach Paper Company, died at Mills Memorial Hospital at San Mateo, Cal., after a brief illness. He was 75 on August 7.

Mr. Zellerbach has been connected with the Crown Zellerbach Corporation and its predecessors for fifty-three years. He became a partner in A. Zellerbach & Sons, of San Francisco, in 1906, and witnessed the destruction of sixteen of the firm's eighteen offices and warehouses in the San Francisco earthquake.

From 1907 until 1928 Mr. Zellerbach was president of the Zellerbach Paper Company, and from 1928 to 1938 was president of the Crown Zellerbach Corporation. He was succeeded in the first position by one son, J. D. Zellerbach, and in the second by another son, Harold Zellerbach. He was a former president of the California State Fish and Game Commission and of the National Paper Trade Association. Surviving, besides his sons, are his wife and a daughter, Mrs. A. B. Saroni, of San Francisco.

WESTINGHOUSE DEVELOPMENTS SPEED PAPER PRODUCTION



Westinghouse gearmotors shown on press rolls and extractor roll of wet end of this paper board machine increased felt life 25% and improved formation and quality.

Modern auxiliary drive increases felt life 25%, and brings important economies in production!

FOR MAXIMUM PERFORMANCE AND TROUBLE-FREE SERVICE SPECIFY WESTINGHOUSE:

MOTORS AND CONTROLS
•
GENERATORS
•
TURBINES
•
SWITCHGEAR
•
TRANSFORMERS
•
LIGHTING
•
INSTRUMENTS

Operators of an eastern paper board mill wished to improve the operation of their conventional felt-driven primary press rolls and extractor roll on the wet end of their paper board machine.

Westinghouse engineers solved the problem by applying auxiliary gearmotor drives to the rolls formerly driven by the felt. Felt life was increased 25%, thus reducing the number of felt changes required. Fewer changes naturally meant considerable savings since each change involved about 18 man-hours of work and the loss of 4 to 6 tons production. And with the installation of the new drives, paper formation and quality were also greatly improved.

This Westinghouse engineering service is the result of more than 50 years electrical experience in co-operation with the paper industry. It is available to help you reduce costs, increase quality or step up production on any mill operation. Call your nearest Westinghouse office for details.

WESTINGHOUSE ELECTRIC & MFG. COMPANY, EAST PITTSBURGH, PA.

Westinghouse

J-94461

TIME-SAVER FOR THE PAPER INDUSTRY

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending August 13, 1941

	High	Low	Last
A. P. W.	1½	1½	1½
Armstrong Cork Co.	29½	28¾	29¼
Celotex Corp.	8⅞	8⅝	8¾
Celotex Corp., pf.	67½	66½	66½
Certain-Teed Products Corp.	3¾	3⅝	3⅝
Certain-Teed Products Corp., pf.	33¼	31	31⅝
Champion Paper & Fibre Co.	21½	21⅜	21⅜
Champion Paper & Fibre Co., pf.	104½	104	104
Congoleum-Nairn Co.	17⅝	17	17½
Container Corp. of America	15⅞	15⅜	15⅜
Continental-Diamond Fibre Co.	8⅜	8⅜	8⅜
Crown-Zellerbach Co.	14¼	13½	13¾
Crown-Zellerbach Co., pf.	88	87	87
Flintkote Co.	15	14⅛	14⅜
Robert Gair	2⅛	2	2⅛
Robert Gair, pf.	10¼	9⅞	10
International Paper & Power Co.	18	16⅝	17¼
International Paper & Power, pf.	67½	66¼	67¼
Johns-Manville Corp.	65½	64½	65
Johns-Manville Corp., pf.	125¾	125¾	125¾
Kimberly-Clark Corp.	31	30	30
MacAndrews & Forbes	25¼	25	25
MacAndrews & Forbes, pf.	...	...	...
Masonite Corp.	23¼	21½	22¾
Mead Corp.	8⅞	8½	8½
Mead Corp., pf.	70	70	70
Paraffine Companies, Inc.	...	...	...
Paraffine Companies, Inc., pf.	102	100½	102
Rayonier, Inc.	17½	16⅛	16⅛
Rayonier, Inc., pf.	29	28⅝	28⅝
Rubberoid Co.	18	17⅝	17⅝
Scott Paper Co.	37¾	37⅝	37¾
Scott Paper Co., pf.	114	113¾	114
Sutherland Paper Co.	19¼	19¼	19¼
Union Bag & Paper Corp.	11⅝	10⅝	10⅝
United Paperboard Co.	4⅛	4	4
U. S. Gypsum Co.	61⅛	58¾	60
U. S. Gypsum Co., pf.	178	177½	178
West Virginia Pulp & Paper Co.	19¾	19	19

New York Curb Exchange

High, Low and Last for Week Ending August 13, 1941

	High	Low	Last
American Box Board Co.	5⅜	5⅜	5⅜
Brown Co., pf.	23	21½	21½
Great Northern Paper Co.	40	40	40
Hummel-Ross Fibre Corp.	6¾	6⅜	6⅜
National Container Corp.	11½	10⅜	10½
St. Regis Paper Co.	2¼	2⅛	2¼
St. Regis Paper Co., pf.	111	103	111
Taggart Corp.	2¾	2¾	2¾

Union Bag Nets $485,023

Net profit of Union Bag and Paper Corporation for the quarter ended June 30, 1941, after provision for Federal income and excess profits taxes and for anticipated additional taxes, amounted to $485,023, equivalent to 38 cents a share of capital stock outstanding.

This compares with net profit on the same basis of $416,292 for the quarter ended March 31, 1941, equivalent to 33 cents a share, and with $597,773 for the quarter ended June 30, 1940, after deducting taxes at rates provided by the second revenue act of 1940, equivalent to 47 cents a share of capital stock then outstanding. Tax provisions for the 1941 second quarter amounted to $731,633.

For the twelve months ended June 30, 1941, net profits amounted to $1,904,502, or $1.50 a share, after providing for the proposed heavier taxes. For the twelve months ended June 30, 1940, net profit amounted to $1,847,872, or $1.46 a share, based on the then effective tax rates.

Alexander Calder, president of Union Bag, stated in his letter to stockholders that net sales of the corporation continued to improve over preceding periods. For the second quarter of 1941 net sales amounted to $6,739,560 against net sales of $6,003,805 for the first quarter of 1941 and net sales of $5,653,483 for the quarter ended June 30, 1940, showing increases of 12 and 19 per cent respectively.

Net sales for the twelve months ended June 30, 1941, totaled $24,338,149, compared with net sales of $20,569,292 for the preceding twelve month period ended June 30, 1940.

Sabin Robbins To Split Stock

CINCINNATI, Ohio, August 11, 1941—E. A. McGough, manager of the Philadelphia division of the Sabin Robbins Paper Co., was elected a vice president of the local paper distribution concern at the organization meeting of stockholders last week. Other officers re-named are J. F. Seagraves, chairman-vice president; D. W. Whitelaw, president; A. S. Dickerson, vice president; Sabin Robbins III, secretary; C. A. Dickerson, treasurer, and Ben Segal, comptroller. The board declared the regular quarterly dividend of $1.75 on preferred stock for payment October 1, to holders of record September 24.

At a meeting held earlier, stockholders approved the recommendation of the board to split the common stock 10 for 1. There is at present an authorized issue of 2,500 shares of common stock outstanding with a par value of $100 each. These will be replaced with an issue of 25,000 of new no-par stock.

Shareholders re-elected the following directors: Charles C. Benedict, C. A. Dickerson, J. F. Seagraves, E. A. Vosmer, D. W. Whitelaw, Sabin Robbins III and Dan Seagel.

S. D. Warren Earnings Up

S. D. Warren Co. reports for the six months ended June 30, 1941, net profit of $248,220, equal to $2.45 per share on the stock outstanding, compared with net profit in first half of 1940 of $199,454, equal to $1.97 per share. Net sales were $6,452,010 this year against $5,118,952 last year.

Ruberoid Makes Good Report

The Ruberoid Company reports as follows for the June quarter: Consolidated net profit, $391,779, or 98 cents a share, against $244,565, or 61 cents a share, in June quarter a year ago; net sales, $6,808,429, against $4,598,238. Six months: Consolidated net profit, $584,876, or $1.47 a share, compared with $183,841, or 46 cents a share, last year; net sales, $11,066,842, compared with $7,668,377.

Consolidated Earns $824,979

Net income of the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., has been reported by the company at $824,979 for the six months ended June 30.

Gaylord Nets 60c Per Share

The Gaylord Container Corporation and subsidiary, for the three months ended June 30, 1941, reports a net income of $394,201 after taxes and charges, equal after preferred dividends to 60 cents a share on 539,221 common shares; preceding pe-

riod, $211,838 and 26 cents a share; year ago $442,546 and 68 cents a share; six months' net income $606,039 after taxes and charges, equal after preferred dividends to 86 cents a share on 539,221 common shares; year ago $643,669 and 92 cents a share.

The directors of the Corporation have declared an extra dividend of 12½ cents a share on the common stock, payable September 15, to stockholders of record on August 30.

Southern Advance Earns Less

The Southern Advance Bag and Paper Company, for the six months ended June 30 reports a Net income of $251,656, compared with $315,338 for six months ended June 30, 1940.

Lily-Tulip Cup Earns $607,220

The Lily-Tulip Cup Corporation and subsidiaries, for the twelve months ended June 30, 1941, reports net income $607,220 after taxes and charges.

Emergency Price Control Act

WASHINGTON, D. C., August 4, 1941—Pending before Congress, the Emergency Price Control Act of 1941 is defined by its sponsors as "strictly an emergency measure" designed to meet the threat of inflation and as a check on the rising cost of living.

Regarding its emergency status, the bill provides that its powers shall be limited to "the present crisis" and shall expire within one year after a declaration by the President, or by a concurrent resolution by both houses of Congress, that its powers are no longer necessary to national defense.

It was explained that a year's grace was allowed in this proviso, to permit gradual readjustment by business to normal conditions after the regulatory need had passed.

The bill authorizes the President to determine ceiling prices on any or all commodities, based on prices that prevailed on July 29, 1941, with certain adjustments, and with respect to agricultural commodities, not to be lower than 110 per cent of parity, or the July 29 price base, which ever is higher. No power was conferred on the President regarding wages.

Provisions are made for appeal to a three-judge Emergency Court of Appeals, and to the United States Supreme Court on certiorari. The bill provides for wide powers of enforcement with penalties for some violations of a fine of $5,000 or imprisonment for one year or both.

Regarding the power to fix rentals in so-called defense areas, it is pointed out that this authority applies strictly to such areas, and is confined to low-cost dwellings on which rentals have advanced 10 per cent or more since August a year ago.

The bill prohibits certain practices of alteration of form or quality which are termed "hidden price raises" and also gives the President powers of buying and selling certain commodities as a stabilizing operation, or to regulate production costs between high and lower cost manufactures of a given commodity.

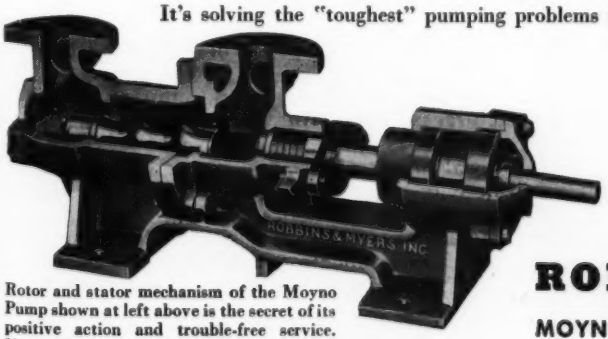
The latter powers authorize the President to acquire or dispose of commodities in order to obtain the maximum necessary production from marginal or high-cost producers without causing general price increases, or otherwise to avoid price increases inconsistent with the purposes of the bill; for instance, in regard to some producers where it might be necessary otherwise to permit prices to rise unduly in order to cover production costs of a high-cost producer.

Here's **YOUR** *Solution to "Pumping Troubles"*

R & M MOYNO PUMP

Efficient, uniform handling of heavy liquids, including size, coating and stock . . . trouble-free service . . . reduced power and maintenance costs . . . improved paper quality! These are the time and money saving advantages you get in the new R & M Moyno Pump.

It's solving the "toughest" pumping problems in leading paper mills . . . giving day-after-day time and money-saving performance . . . speeding production.



Rotor and stator mechanism of the Moyno Pump shown at left above is the secret of its positive action and trouble-free service. Note minimum of other working parts.

UNIFORM, METERED DELIVERY

The patented principle of a single-thread helical rotor revolving within a double-threaded helical stator provides positive displacement, forces liquids gently forward and with metered uniformity. There are no valves or pistons to stick, leak, clog or wear out.

An R & M Moyno Pump can solve *your* toughest pumping problem. Let our field experts show you how, without obligation on your part. Write today for R & M Moyno Pump Folder No. 1777.

ROBBINS & MYERS • Inc.

MOYNO PUMP DIVISION SPRINGFIELD, OHIO

CONSTRUCTION NEWS

Clifton, N. J.—The Clifton Paper Board Company, Ackerman avenue, manufacturer of fiber board, kraft board, and other paper board products, is considering rebuilding of one-story mill building, recently destroyed by fire. Structure was being used for the production of cartridge boxes for Government. Loss reported approximately $50,000, including equipment.

Needham, Mass.—The William Carter Company, 464 Hillside avenue, manufacturer of stiff folding boxes and containers, has approved plans for new addition to plant, consisting of a one-story and basement structure, about 60 x 70 feet, to be used for expansion in main production division. No estimate of cost announced. General erection contract has been let to C. A. Dodge Company, 2 Erie street, Cambridge, Mass., and work is scheduled to be placed under way at once.

St. Paul, Minn.— The Minnesota Mining and Manufacturing Company, 900 Fauquier street, manufacturer of sand paper and other abrasive paper stocks, has approved plans for new one-story addition, totaling about 30,000 square feet of floor space, to be used for expansion in production division. It is reported to cost over $85,000, with equipment. General erection contract has been awarded to William L. Murphy & Son, New York Life Building, St. Paul, and superstructure will be placed under way at once. Toltz, King & Day, Inc., Pioneer Building, St. Paul, is architect and engineer.

Stevens Point, Wis.—The Whiting-Plover Paper Company, manufacturer of writing papers and other stocks, is awarding miscellaneous contracts for completion of new addition to power house at mill, previously referred to in these columns, including cast stone, steel sash, metal roof deck, etc., and will have the structure ready for service in near future. It will be three-story, 32 x 52 feet, reported to cost over $75,000, with boiler unit and auxiliary equipment. C. R. Meyer & Sons Company, 50 State street, Oshkosh, Wis., has the general erection contract. Helmick, Edeskuty & Lutz, Essex Building, Minneapolis, Minn., are consulting engineers.

Louisville, Ky.—The Reynolds Metals Company, 311 West Broadway, manufacturer of aluminum, tin and other metal foils, has concluded arrangements for lease of a local plant of the American Oak Leather Company, South Twelfth street, not occupied at present time, consisting of several one-story buildings, totaling about 125,000 square feet of floor space, and will take immediate possession. Structures will be remodeled and equipped for the manufacture of a line of heavy paper containers, suitable for shipment of smokeless powder. Output will be used primarily for such purpose at new ordnance plant of Government at Charlestown, Ind. Machinery will be installed for large output, designed to give employment to approximately 200 persons. Cost of improvements and equipment is estimated at close to $250,000. It is expected to have the new converting plant ready for operation in November.

Columbus, Ohio—The Columbus Paper Box Company, Inc., 344-52 West Town street, manufacturer of folding paper boxes and containers, has begun erection of new two-story addition to plant, about 40 x 130 feet, recently referred to in these columns, and will push structure to early completion. It will be used for general expansion in main production department, and is reported to cost close to $60,000, including equipment. E. Elford & Son, 555 South Front street, Columbus, have the general erection contract.

Buffalo, N. Y.—The Wagner Folding Box Corporation, 1534 Bailey avenue, manufacturer of folding paper boxes and containers, has taken out a permit for new one-story addition to plant, on which work will proceed at once. No estimate of cost announced.

Newark, N. J.—The Seeley Tube and Box Company, 360 Thomas street, manufacturer of paper tubing, stiff paper boxes and kindred products, has leased a local industrial building at 398 Adams street, and will equip for expansion, primarily for the production of cases and containers for the Government. As previously mentioned in these columns, company has established a new branch plant at Dover, N. J., for similar Federal production, and further expansion will be carried out at that location, with the acquisition of about 60,000 square feet of additional floor space in neighboring industrial building.

Philadelphia, Pa.—The Royal-Pioneer Paper Box Manufacturing Company, 1147 North Fourth street, manufacturer of fiber and paper boxes and containers, has leased a four-story and basement industrial building at 1025-31 North Front street, totaling about 45,000 square feet of floor space, and will occupy for expansion. Company will take immediate possession.

St. Marys, Ohio—The Auglaize Box Board Company, manufacturer of container board, news board, etc., has arranged with city for increased water supply for service at mill, and a new pipe line will be constructed across Spring street for this purpose. Work is scheduled to begin soon.

Hamilton, Ohio—The Champion Paper and Fibre Company is operating on a capacity schedule at its different mills, with present daily output totaling in excess of 900 tons of finished white papers, made from bleached pulp. It is stated that this is a record production, making the company the largest producer of paper of such character in the world.

Hull, Que.—The E. B. Eddy Company, Ltd., manufacturer of newsprint, wrapping and other paper stocks, has begun erection of a new addition to local mill, to be equipped as an acid unit. It will be equipped for large capacity and is estimated to cost in excess of $1,000,000, with machinery. General contract for erection has been awarded to the Foundation Company of Canada, Ltd., 1538 Sherbrooke street West, Montreal, Que.

New Companies, etc.

Detroit, Mich.—Ampure, Inc., 1211 Lafayette

Building, has been incorporated with capital of 5000 shares of stock, no par value, and $5000, to manufacture processed pulp products. James E. Slevin, 13047 Manor avenue, Detroit, is principal incorporator.

Detroit, Mich.—The Industrial Processing Corporation, 525 East Lafayette street, has been organized to process fiber products. Benjamin Robinson, 18617 Greenlawn avenue, Detroit, is principal incorporator.

Alhambra, Calif.—The Northern Paper Mills, Green Bay, Wis., a Wisconsin corporation, has filed notice of organization to operate in California, with capital of $130,000. Irving Damon, 3140 Poplar boulevard, Alhambra, is local representative.

Atlas Mills Get Desist Order

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 13, 1941—Atlas Wall Paper Mills, Inc., Coal City, Ill., engaged in the manufacture and sale of wall paper, has been ordered by the Federal Trade Commission to cease and desist from misrepresentation in connection with the sale of its products.

The Commission finds that the respondent has represented to prospective purchasers, both jobbers and retailers, through price lists and sample books and through oral statements made by the respondent's agents and salesmen, that its products are "washable," "water-resisting," "color-fast" and "printed with the best non-fading colors obtainable," and also represented and implied that the wall paper so referred to may be washed or cleansed with water without suffering damage or loss of appearance and that the paper is unaffected by exposure to sunlight. These representations are found to be false and misleading.

The respondent is ordered to cease and desist from representing, in connection with the sale and distribution of its product, that wall paper is washable, water-resisting, color-fast or non-fading, when such paper is affected in appearance, or otherwise, when washed or cleansed with water or when exposed to sunlight, and from using the terms "washable," "water-resisting," "color-fast" or "printed with the best non-fading colors obtainable," or any other term or terms of similar import and meaning to designate, describe or refer to wall paper which is affected in appearance, or otherwise, when washed or cleansed with water or when exposed to sunlight.

Paper Box Shipments at Peak

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., August 11, 1941—Shipments by members of the Folding Paper Box Association of America, it was learned at headquarters here last week, ran somewhat behind the 65 per cent increase in orders booked during July, but established, nevertheless, a new volume record.

The undisclosed percentage difference between shipments and orders represents, of course, the heavy volume of forward ordering that is going on in most branches of the paper goods industry and which is pushing delivery dates further and further into the future in the more active lines.

Reports reaching the association headquarters reveal a wide variation in production records, due to an equally wide difference in the amount of materials available for the various types of folding boxes.

LEGAL NOTICE

UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

In the Matter of DETROIT PAPER PRODUCTS CORPORATION, a Michigan corporation, Debtor	In Proceedings for the reorganization of a Corporation under Chapter X of the Bankruptcy Act. No. 27,511

ORDER SETTING TIME FOR FILING OF PLANS OF REORGANIZATION OF DEBTOR AND SETTING TIME FOR MAKING BIDS FOR PURCHASE OF CERTAIN OF DEBTOR'S PROPERTIES, AND SETTING DATE FOR HEARING ON ALL PLANS OF REORGANIZATION WHICH MAY BE FILED, AND SETTING DATE FOR HEARING ON THE ADEQUACY OF BIDS, AND ORDER DIRECTING SALE

At a session of said Court held in the Federal Building, in the City of Detroit, Michigan, on the 1st day of August, 1941.

PRESENT: HONORABLE FRANK A. PICARD
United States District Judge

An Order to Show Cause, which issued out of this Court on July 21, 1941, having this day come on for hearing before this Court on the question of whether or not Debtor, Detroit Paper Products Corporation, should be authorized, upon such terms and conditions as the Court may approve, to sell and dispose of its property (land, buildings, machinery and equipment) comprising its Kalamazoo, Michigan, paper mill plant, and also the machinery and equipment contained in and comprising the plastic products division of its Detroit, Michigan, plant; and there having been present in Court Herman A. August, the Examiner; Oscar A. Markus, as attorney for Debtor; C. J. Odenweller, Jr., as attorney for the Securities and Exchange Commission; Mortimer B. Gordon, as attorney for certain preferred stock holders; and Harold N. Harris, Samuel S. Greenberg, Joseph Zwerdling, Harris W. Wiener, Buell Doelle, and Herman J. Bloom, as attorneys for certain common stockholders, and the Court having heard arguments of all counsel and other interested persons appearing in the Court, and having been duly advised in the premises, and it appearing to the court that unless an otherwise feasible and fair plan of reorganization in accordance with the requirements of Chapter X of the Act of Congress relating to bankruptcy can be presented to the Court, that the land, buildings, machinery and equipment comprising Debtor's Kalamazoo, Michigan, paper mill plant should be sold and disposed of and that such sale and disposal of said property may be in aid of a reorganization of Debtor;

IT IS HEREBY ORDERED, that the Examiner and Counsel for Debtor shall take all steps which they deem necessary or advisable to solicit and endeavor to secure from any and all persons or other sources who have expressed any interest in purchasing Debtor's Kalamazoo, Michigan, paper mill plant (land, buildings, machinery and equipment), and/or the machinery and equipment comprising Debtor's plastic products division of its Detroit, Michigan, plant, bids for the purchase of such property, to be in writing and to be addressed to and filed with the Examiner, Herman A. August, 3123 Barlum Tower, Detroit, Michigan, on or before Friday, September 5, 1941, at 3:00 o'clock P.M. (Eastern Standard Time), any bid pertaining to the purchase of Debtor's Kalamazoo, Michigan, paper mill plant property to be accompanied by a certified check payable to Debtor, in an amount of not less than $10,000.00 and

IT IS FURTHER ORDERED, that September 5, 1941 is hereby designated and fixed as the last and final day of a period within which a plan or plans of reorganization for Debtor may be filed in this Court by the Examiner, Debtor, creditors and stockholders of such classes as may be entitled to participate in any plan of reorganization; and

IT IS FURTHER ORDERED, that September 15, 1941, at 9:00 o'clock in the forenoon (Eastern Standard Time) at Room 854 Federal Building, Detroit, Michigan, be and it hereby is fixed as the time and place for a hearing on such plans for the reorganization of Debtor, if any, as may be filed and proposed in this Court as above provided and for the consideration of all objections and amendments thereto; and

IT IS FURTHER ORDERED, that September 15, 1941, at 2:00 o'clock in the afternoon (Eastern Standard Time) at Room 854 Federal Building, Detroit, Michigan, be and it hereby is fixed as the time and place for a hearing to consider the adequacy and sufficiency of any and all bids that may be received for the purchase of Debtor's Kalamazoo, Michigan, paper mill plant and/or machinery and equipment comprising Debtor's plastic products department, as proposed and provided for in this Order, and for the consideration of all objections and amendments thereto, the Court reserving the right to reject any and all bids; and

IT IS FURTHER ORDERED, that Debtor's Kalamazoo, Michigan, paper mill plant shall be sold on September 15, 1941 (or as soon thereafter as mechanics for consummating and effecting such a sale can be arranged), (a) if, in the opinion of this court, there shall have been received, as provided hereinabove, a satisfactory bid upon terms and conditions acceptable to this Court, and (b) if at or after the hearing on September 15, 1941, at 9:00 o'clock A.M. on such plans for the reorganization of Debtor, if any, as may be filed and proposed in this Court as above provided, this Court shall not have entered an Order approving any such plan, necessitating the retention of Debtor's Kalamazoo, Michigan, paper mill plant properties, as in the opinion of this Court complies with the provisions of Section 216 of Chapter X of the Act of Congress relating to bankruptcy, as amended, and which in the opinion of this Court is fair, equitable and feasible; and

IT IS FURTHER ORDERED, that printed copies of this Order creditors, and all other parties entitled to such notice within 10 days in the foregoing respects shall be mailed by Debtor to its stockholders, after entry of this Order and that a copy of this Order shall be published once in a paper of general circulation in the City of Detroit, County of Wayne and State of Michigan (to be selected by the Examiner and Counsel for Debtor) and in two of the recognized trade journals of the paper board and corrugated paper container industry (to be selected by the Examiner and Counsel for Debtor); and

IT IS FURTHER ORDERED, that all other matters heretofore adjourned to and scheduled to be heard on August 1, 1941 be adjourned to September 15, 1941 at 2:00 o'clock P.M. (Eastern Standard Time)

/s/ FRANK A. PICARD
United States District Judge

PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.
Henry J. Berger
EDITOR

Vol. 113 August 14, 1941 No. 7

COMING EVENTS IN PAPER INDUSTRY

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Fall Meeting, Ann Arbor, Mich., September 16-19.

NATIONAL PAPER TRADE ASSOCIATION, annual Fall Meeting, Stevens Hotel, Chicago, Ill. September 15-17.

PRICE FIXING

With defense expenditures steadly rising increased pressure is being placed on industrial plants manufacturing essential defense supplies. A billion dollars monthly will soon be expended for defense, compared with 800 million dollars monthly at the present time. This is the expectation of Harold D. Smith, Director of the Budget. Mr. Smith expressed the opinion last month that industry would never catch up in productive capacity to the government's capacity for financing defense productions. This is understandable enough. The basic reason for Mr. Smith's opinion is in the tremendous and expanding magnitude of the entire defense program.

It is on a grand scale and now considers the increasing requirements of the United States, Russia and China, as well as Britain, the East Indies and possibly other nations are included. As American military goods have been promised to be delivered to so many actual and prospective battle fronts, the demand upon American industry is so great that non-defense plants are beginning to experience the effects of this all-out defense effort. With more workers employed than ever before, at higher wages, the inflation spectre appears drawing nearer. To avoid the rapid rise in prices which must follow prodigious government spending and heavy civilian demand, new price control legislation has been asked by the President.

The proposed price-control bill is intended to check soaring prices and avoid much of the hardships thereafter, when prices decline and deflation begins to rapidly level out the peaks of prosperity built up by defense expenditures. The difficulty of turning swords into ploughshares is viewed as formidable a problem as producing enough arms in the first instance. As the problem of inflation and deflation has never been solved, the difficulty confronting the Administration is immense. The theory now being considered, is for governmental control of key prices, following in a general way the price level as of July 29. Rents would also be subject to control on the basis of the level prevailing on August 31, 1941. The theory now under consideration so far as it has been outlined, does not include the fixing of all prices, but only the major or key prices which exert the greatest influence on the general price level. To provide the requisite flexibility, the President would be empowered to fix these key prices higher or lower than the general level, as his judgment might at any time determine. The plan as now proposed would include no maximum on wages, farm prices would be at parity, with some specified exceptions. The President would also have authority to control retail credit and installment sales.

The proposal if adopted might well bring wide and drastic government regulation of the activities of all business men. If there was no general pegging of all prices, the danger would be present that the margin of profit would be decreased unfairly as the uncontrolled elements of cost increased. The threat of penalties would be included in the proposed plan, violations of price orders would presumably be subject to suits by customers and by the Government. Private business enterprise would find it difficult to adjust its activities to conform with the proposed measure.

The wage earner, on the other hand, would be less restricted, as the proposed plan does not now prohibit strikes or the demand for higher wages. But wages would necessarily have to be checked from rising too rapidly and amendments are expected to be made when necessary after Congress passes the bill. Farmers would have no maximum of "ceiling" prices below parity, parity prices being defined as prices assuring farmers equal purchasing power in manufactured goods they had in the five-year period before the last world conflict. This implies that the proposed price-fixing bill would not fix farm prices, which would fluctuate with the cost of living. As the farm bloc proposes a 110% parity price to place the farmer on an equal footing with the industrial worker, the plan roughly increases farm income by some two billion dollars. The parity plan attracted wide attention under the original AAA legislation of 1933, but its conception was in the Bureau of Agricultural Economics following the termination of the last world conflict. As the question of farm prices is of vital importance to the general prosperity of the country, it may be interesting to note that while the actual price of wheat was .856 on July 15, the 110% parity price would necessitate an increase of 51.2% to obtain parity. The average market price of eggs, to cite a second instance, was .256 per dozen on July 15,

the 110% parity price, .283, thus eggs would be advanced 10.5% per dozen to achieve the proposed parity. Some twenty-seven agricultural commodities would be affected by the plan, which would advance some grains, such as rye and barley over 100% from the July 15 price level, while some meats, such as lamb and beaf, and milk are already above the 110% parity prices.

Thus the prospect confronting business under the proposed price adjustment level is one of increasing difficulty and greater sacrifices than ever before seem inevitable. The first major problem which the paper and pulp industry has faced is the acute shortage in the supply of chlorine. Undoubtedly, the rationing of this important and widely used chemical for both defense and civilian requirements will be solved satisfactorily for defense needs, which must be considered of paramount importance, as the domestic production is adequate for total defense requirements. Unfortunately, the margin of supply is not adequate for the brightness standard prevailing in the industry and this standard must soon be substantially reduced.

Hammermill Agents to Meet

The 30th annual convention of the agents of the Hammermill Paper Company, Erie, Pa., will be held this year Thursday and Friday, August 21 and 22. The recreational and social activities will be held at the Kahkwa Club and a very attractive program, as usual, will be presented.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks, 1941		Corresponding Weeks, 1940	
June 28	101.5	June 29	92.0
July 5..(Holiday Week)	75.0	July 6	69.0
July 12	95.8	July 13	91.1
July 19	100.4	July 20	91.3
July 26	101.9	July 27	87.6
August 2.....(Prelim.)	*100.7*	August 3	87.4

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1940	89.1	84.7	82.3	84.3	90.0	92.1	85.3
1941	85.6	89.4	92.3	96.4	98.9	99.5	*95.2*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1940	85.1	81.5	85.5	84.9	80.9	85.6
1941	...	...	...	...	...	...

COMPARATIVE YEARLY SUMMARIES

	1935	1936	1937	1938	1939	1940	1941
Year to Date...	68.3	77.8	87.6	68.0	78.6	86.9	*93.7*
Year Average..	69.9	80.4	79.8	71.5	83.4	85.6	...

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1936	62	67	67	70	69	70	69	75	78	82	80	74	72
1937	80	86	86	88	85	77	66	74	69	65	55	45	73
1938	54	60	61	57	58	56	57	66	66	70	65	59	61
1939	60	67	71	69	64	67	63	72	74	84	81	71	70
1940	71	70	69	70	76	79	72	74	72	79	77	71	73
1941	75	81	82	83	84	88	*86*	..	..	..	..	..	..

Week ending June 28, 1941—90
Week ending July 5, 1941—74
Week ending July 12, 1941—77
Week ending July 19, 1941—92
Week ending July 26, 1941—92
Week ending Aug. 2, 1941—*93*

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

EXPORTERS
OF AMERICAN PULP

TO
BRITAIN
SOUTH AMERICA
AND ALL WORLD MARKETS

LYDDON
& COMPANY
(AMERICA) INC.

51 EAST 42ND STREET
NEW YORK CITY

PULP and PAPER MILLS NEED...

WALWORTH
Figure 725 FS
PULP and PAPER MILL VALVES

These valves, designed especially for pulp and paper mill service, are made of special alloys to withstand corrosive action. They are widely used throughout the industry.

On caustic liquor lines in many kraft mills, and on waste lines from blow pits in sulphite mills, these valves have outlasted other valves previously used.

Walworth Pulp and Paper Mill valves are available in a complete range of sizes from 2" to 14" inclusive.

Let the engineers of the Walworth Pulp and Paper Mill Division assist you in selecting the valves and fittings you require.

WALWORTH

WALWORTH COMPANY
60 EAST 42nd STREET, NEW YORK

VALVES
FITTINGS
and TOOLS
Backed by
99 Years' Service

DISTRIBUTORS IN PRINCIPAL
CENTERS THROUGHOUT THE WORLD

Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Effect Of Monoethanolamine upon Corncob Lignin

A Preliminary Investigation

By J. David Reid[1], E. C. Dryden[1], and S. I. Aronovsky[1]

Abstract

Monoethanolamine has been shown to effect partial demethylation of native and isolated lignins, guaiacol, and vanillin. This demethylation is accompanied by a condensation of the monoethanolamine with the reacting materials to form nitrogen-containing products, which may be remethylated without loss of nitrogen.

Long-continued action of the amine on isolated lignin produces difficultly-soluble, resinified products as well as an acid-soluble fraction. In the case of native lignin, the product is soluble in both acids and alkalies. However, it may be partially precipitated from the monoethanolamine solution by the addition of carbon dioxide, or from the acidified solution by making the latter alkaline with sodium carbonate. The native lignin-monoethanolamine condensation product may also be recovered by bromination of the acidified solution.

Part of the hemicellulose of corncobs is extracted by the amine and can be easily recovered. A purified product soluble in water, and containing about 81% pentose and 10% hexose, is obtained.

Monoethanolamine (2-aminoethanol) has been utilized recently as a reagent for the removal of lignin in the quantitative isolation of cellulose *(8, 10)*, and its use as a pulping agent has been patented *(5)*. These investigations have raised the question as to the effect of the monoethanolamine upon the lignin. In the analysis of bagasse with monoethanolamine, 97.5% of the lignin was dissolved be refluxing the sample with the reagent for 2 hours. Subsequent efforts to recover the lignin quantitatively from the solution were unsuccessful, as the lignin products were soluble in both acidic and basic solutions.

A study of the effect of monoethanolamine upon lignin was therefore initiated, and some interesting preliminary results were obtained. Further work on this problem had to be suspended, due to a change in the program of this laboratory. The present report briefly describes the preliminary work on the reaction between monoethanolamine and lignin and on the properties of the resulting products. It is expected that this investigation will be resumed in the near future as part of the program of the Northern Regional Research Laboratory of the Bureau of Agricultural Chemistry and Engineering at Peoria, Illinois.

Action of Monoethanolamine on Phenols

It has been suggested *(1)* that the lignin unit contains free phenolic groups, methoxyl groups and a carbonyl group. Some experiments were therefore made with monoethanolamine on certain representative phenolic substances, such as guaiacol and vanillin, in order to study the action of the amine upon these simpler compounds.

When guaiacol was refluxed with ethanolamine for increasing periods of time, catechol was produced in increasing yields up to a maximum of 61% (at 45 hours). The catechol was recovered from the monoethanolamine solution by acidification with sulfuric acid followed by extraction with ether. The product was sublimed and recrystallized, and its identity established by determination of its melting point and that of its bromine derivative *(3)*. While refluxing for periods longer than 45 hours resulted in complete demethylation of the guaiacol, decreased yields of catechol were obtained, probably as a result of condensation of the latter with the amine. The condensation product contained nitrogen and was soluble in acid. It could be precipitated from the solution by bromine, to form an intensely red compound which contained no methoxyl. When samples of catechol, resorcinol and hydroquinone were refluxed with ethanolamine, similar nitrogen-containing products were formed. These products were not investigated further. The results indicate that monoethanolamine acts as a demethylating agent and that it condenses with dihydric phenols.

Upon boiling vanillin with monoethanolamine, a nitrogen-containing resin, insoluble in ether and in dilute acid, was formed. This product was separated into two fractions, one insoluble and the other soluble in 95% ethyl alcohol. The alcohol-insoluble fraction contained 6.5% nitrogen and 12.0% methoxyl, while the soluble fraction contained 6.8% nitrogen and 11.0% methoxyl, indicating that both demethylation and condensation had taken place. During the re-

[1] Agricultural By-Products Laboratory, Ames, Iowa.
Established by the Bureau of Agricultural Chemistry and Engineering, U. S. Department of Agriculture, in cooperation with the Iowa State College.

fluxing a considerable amount of ammonia was evolved.

Preparation and Analysis of Isolated Lignin

Alkali lignin was prepared by digesting corncobs with a 3% solution of sodium hydroxide at 100 psi. pressure for 2 hours, filtering, washing, and acidifying the filtrate with sulphuric acid. The precipitated alkali lignin was coagulated by boiling, and then filtered and washed. The lignin was then treated with cold 72% sulphuric acid for 2 hours at 20 deg. C. (in order to remove the hemicelluloses), after which the mixture was diluted to 3% acid content and boiled. The yield of purified lignin amounted to about 91% of the alkali lignin. The analysis of this material, hereafter referred to as *isolated lignin*, was as follows: nitrogen, 0.89%; methoxyl, 12.8% (27.5% after exhaustive methylation).

Lignin determinations were made by the method of Ritter, Seborg, and Mitchell *(9)*. The nitrogen was determined by a semimicro Kjeldahl method *(7)*, and the methoxyl by the method of Peniston and Hibbert *(4)*. The methylations were carried out essentially as described by Phillips and Goss *(6)*[2].

Effect of High Temperature on Isolated Lignin

In order to show that the effect produced upon heating lignin with monoethanolamine is not due to heat alone, equal amounts of isolated lignin were heated for 16 hours at 172 deg. C. (a) in the dry state, (b) in an inert liquid (mineral oil), and (c) in monoethanolamine. Then the dry-heated lignin and a sample of the original were each boiled with 3% sulphuric acid. The monoethanolamine mixture was diluted with water and acidified to 3% sulphuric acid content and boiled. The mineral oil mixture was freed of oil by ether and similarly treated. The residual yields and methoxyl contents were determined, and the samples were treated with 72% sulphuric acid as in the usual lignin determination *(9)*. The results given in Table I indicate that the high temperature alone had but little effect upon the lignin and the methoxyl content.

TABLE I.—EFFECT OF HEATING ISOLATED LIGNIN FOR 16 HOURS IN VARIOUS MEDIA AT 172 DEG. C.

Sample	Residue after 3% acid treatment %	Methoxyl content %	Residue after 72% acid treatment %
Unheated lignin	97.6	13.7	94.7
Heated in mineral oil	98.7	11.9	98.6
Heated dry	97.0	14.0	97.0
Heated in ethanolamine	72.0	2.8	62.0

Action of Monoethanolamine on Isolated Lignin

In order to study the effect of time on the reaction between the monoethanolamine and isolated corncob lignin, the latter was refluxed with 6 parts of the amine for varying periods of time, cooled, diluted, and made up to 3% acid content with sulphuric acid. The acid solution was brought to boiling and filtered hot through weighed, fritted-glass filtering crucibles. After standing overnight, the cold solution contained a precipitate which was filtered off in another crucible, and an aliquot portion of this filtrate was treated with bromine water. The resulting brominated precipitate was dried and weighed. From the data summarized in Table II, it is evident that at first a rapid solubilizing of the lignin occurs, after which the reaction slows down. A distinct odor of ammonia was noticed when isolated lignin was refluxed with the amine, suggesting that the reaction was similar to that which took place in the case of vanillin. It is evident from Table II that the action of the amine upon the lignin tends to increase with increased time of refluxing, as indicated by the increasing solubility of the lignin in hot dilute acid.

TABLE II.—EFFECT OF TIME OF BOILING WITH MONOETHANOLAMINE ON RECOVERY OF LIGNIN
(Ratio of amine to lignin, 6:1)

Hours treated	Recovery from hot 3% H_2SO_4 %	Recovery from cold acid %	Brominated product recovered per gram of original lignin gram
1	69.2	10.4	.14
2	66.8	11.5	.13
3	61.4	14.4	.16
6	56.3	14.7	.17
16	48.3	17.7	.15
25	42.5	19.5	.15
47	29.0	25.1	.17
45*	48.4	30.7	.38

* Refluxed one part of monoethanolamine to one part of lignin.

Isolated corncob lignin (61.9 grams) was dissolved in 619 grams of amine and refluxing was continued for 4 hours. The resulting liquid was concentrated by vacuum distillation over a steam bath and made up to one liter with water. The ethanolamine-lignin complex, precipitated on dilution was filtered off. It contained 8.8% methoxyl and 4.76% nitrogen. The solubility characteristics of the lignin had changed considerably; while the original isolated lignin was completely soluble in acetone-alcohol (2:1) mixture and in hot dioxane, the ethanolamine derivative was insoluble in the mixture and only slightly soluble in dioxane. The dioxane-insoluble portion had a methoxyl content of 8.1% and a nitrogen content of 4.74%, while the soluble portion, precipitated from the dioxane by ethyl ether, contained only 0.64% methoxyl and 3.81% nitrogen. When a portion of the filtrate from the diluted solution was made up to 3% acid content, an additional precipitate was obtained. This was similar to the first precipitate in methoxyl content (8.8%), but it contained less nitrogen, (3.2%).

When the lignin fraction precipitated upon dilution of the concentrated solution and that obtained by acidification of the resulting filtrate were methylated, the methoxyl contents increased to 28.0 and 26.7%, respectively. The nitrogen contents of the methylated fractions were 3.7 and 2.8%, respectively, indicating that the nitrogen contents were relatively unaffected by the methylation, taking into consideration the increase in weight due to the additional methyl groups.

A number of preliminary experiments made to determine the effect of monoethanolamine upon isolated spruce lignin gave results similar to those obtained with corncob lignin.

Effect of Monoethanolamine on Native Corncob Lignin

From the experiments described above, it is apparent that the lignin isolated from corncobs reacts with boiling monoethanolamine to form partially demethylated condensation products. When the isolated lignin is reacted with the amine for long periods of time, from 7 to 9% of nitrogen is found in the polymerized insoluble product. Since lignin is appar-

[2] During the second stage of the methylation, using 40% sodium hydroxide solution, it was noted that the methyl sulphate was insoluble in the concentrated alkali and this layer of methyl sulphate dissolved part of the isolated lignin and all of the monoethanolamine derivative. After hydrolysis began, the mixture had to be cooled in order to moderate the reaction and to avoid loss of the solid which suddenly formed at this point.

ently modified in the process of isolation, it was of interest to compare the action of the amine on native corncob lignin in the plant tissues.

Moisture-free corncobs, containing 14.1% lignin and 28.3% pentosans, were refluxed for 4 hours with ethanolamine. A small amount of ammonia was evolved during the reaction. The solution was filtered and the residue washed with water. The dried residue of crude cellulose comprised approximately 62% of the weight of the cobs and contained 0.17% lignin and 25.4% pentosans. The filtrate thus contained essentially all of the lignin plus approximately half of the pentosans originally present in the cobs. Dilution of the amine solution did not cause precipitation of lignin, and steam distillation of the alkaline liquid gave no measurable quantities of substances other than monoethanolamine. Ether extraction of acidified portions of the solution gave only small amounts of an organic acid (presumably acetic acid).

The filtrate and washings obtained above were concentrated by distillation *in vacuo*, and the hemicelluloses were precipitated by the addition of about 5 volumes of ethyl alcohol to the concentrated solution. The precipitated hemicelluloses were filtered off and the resulting filtrate was again concentrated, by distillation *in vacuo*, to a viscous solution which was almost completely soluble in dilute sodium hydroxide, in monoethanolamine, and in acid solutions. This solution still contained about 20% of monoethanolamine, after removal of the alcohol. (It was not possible to remove all of the amine even by prolonged vacuum distillation.) Continuous extraction of a diluted, acidified portion of the viscous monoethanolamine-lignin solution with benzene gave a 1.2% yield, based on the original lignin, of a liquid with phenolic properties. When the extracted liquid was made slightly alkaline with sodium carbonate and again extracted with benzene, a further plenolic extract of about 1.5% was obtained.

A portion of the lignin could be precipitated by the addition of carbon dioxide to the concentrated, viscous ethanolamine solution, but better coagulation was obtained when the liquid was first acidified and then made alkaline with sodium carbonate solution. The residue precipitated with sodium carbonate from an aliquot portion of this viscous liquid was centrifuged out, extracted with benzene and again dissolved in acid and reprecipitated as before, washed, and dried at 60 deg. C. *in vacuo* over phosphorous pentoxide. The yield was 41.2%, based on the original lignin removed from the cobs and making no allowance for the increase in weight due to the added nitrogen. The methoxyl content of the dried material was 3.4% and the nitrogen content 9.0%.

Approximately the same quantity of lignin was recovered by acidification and bromination of a second aliquot of the viscous liquid. The brominated precipitate gave, on analysis, 5.2% nitrogen, 38.9% bromine by the Elek and Hill method *(2)* and 1.7% methoxyl. After correcting for the bromine present, the calculated yield was 43.1%.

The condensation products obtained by the action of monoethanolamine on native lignin were easily soluble in contrast to the comparatively insoluble nitrogen-containing products obtained from isolated lignin. The effect of the presence of hemicelluloses upon the reaction between monoethanolamine and native lignin may be a factor contributing to these differences.

Production of Corncob-Hemicellulose by Monoethanolamine

The corncob hemicellulose precipitated by the addition of alcohol to the monoethanolamine extract was freed from amine by repeated treatment with boiling alcohol. A 12% yield (based on the dry cobs) of a granular light-gray material containing 75.4% pentosans was obtained. Nearly all of this material dissolved (or peptized) in hot water and gave an opalescent solution. It was purified by repeated solution in water and reprecipitation with alcohol. The purified material was practically white. It was dried at 60 deg. C. *in vacuo* over phosphorous pentoxide and found to contain about 81% pentose (based on the furfural produced) and 10% hexose (based on total reducing power). The investigation of this product was not carried further. However, this method of isolation might be of considerable interest in the simplified production of water-soluble hemicelluloses.

Literature Cited

(1) Brauns, F., *Paper Trade J.*, 111, no. 14:33 (1940).
(2) Elek, A. and Hill, D. W., *J. Am. Chem. Soc.*, 55:2551 (1933).
(3) Mulliken, S. P., "Identification of Pure Organic Compounds", vol. 1, p. 109, New York, John Wiley and Sons (1904).
(4) Peniston, Q. P. and Hibbert, H., *Paper Trade J.*, 109, TAPPI Section: 230 (1939).
(5) Peterson, F. C. and Wise, L. E., U. S. pat. 2,218,479 (Oct. 15, 1940).
(6) Phillips, M. and Goss, M. J., *J. Biol. Chem.*, 114, 562 (1936).
(7) Redemann, C. E., *Ind. Eng. Chem., Anal. Ed.*, 11, 635 (1939).
(8) Reid, J. D., Nelson, G. H., and Aronovsky, S. I., *Ind. Eng. Chem., Anal. Ed.*, 12, 255 (1940).
(9) Ritter, G. J., Seborg, R. M., and Mitchell, R. L., *Ind Eng. Chem., Anal. Ed.*, 4, 202 (1932).
(10) Wise, L. E., Peterson, F. C., and Harlow, W. M., *Ind. Eng. Chem., Anal. Ed.*, 11, 18 (1939).

TAPPI Notes

Arrangements are being made to provide for the Technical Association committees to hold breakfast meetings at the fall meeting at Ann Arbor on September 16-19. Any chairman wishing to hold such a meeting should notify D. W. McCready, Department of Chemical Engineering, University of Michigan, Ann Arbor, Mich., as soon as possible.

Daniel L. Sherk, formerly of the Wood Conversion Company, is now chemist for the Celanese Corporation, Cumberland, Md.

W. F. Hathaway, of the Kalamazoo Vegetable Parchment Company, Parchment, Mich., has been appointed to the chairmanship of the TAPPI Nonfibrous Materials Testing Committee, succeeding W. A. Kirkpatrick of the Allied Paper Mills, Kalamazoo, Mich.

Rudolph Weiler, formerly of the laboratory staff of the Nekoosa-Edwards Paper Company is now chemical engineer for the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis.

E. D. Rich, formerly of the Oregon Pulp and Paper Company is now director of the Pulp and Paper Products Laboratory, Richaven Investment Company, Tacoma, Wash.

To Close South Manchester Mills

SOUTH MANCHESTER, Conn., August 11, 1941—The mills of the Rogers Paper Manufacturing Co. on Charter Oak Street and Hartford Road at the south end of town will be abandoned by September 15, and the company will operate on Mill Street at the North End, where its main office will be located. Operations will be continued at the mill in Goodyear.

Bacterial Degradation of Felts*

I. A Bacteriological Technique for Studying the Degradation of Felts

By John W. Appling[1], Olga A. Smith[1] and Douglas Fronmuller[1]

Abstract

At various times during the past eighteen years, many different species of bacteria have been isolated from damaged felts and from white water. The species isolated from damaged felts include members of the Micrococcaceae, Bacteriaceae, Bacilaceae, and Actinomycetaceae families. The most active wool-decomposing species which have been identified are: Alcaligenes bookeri, Alcaligenes faecalis, Pseudomonas aeruginosa, Pseudomonas fluorescens, Proteus vulgaris, Bacillus agri. (var.), Bacillus aurantius (var.), Bacillus megatherium, Bacillus mycoides, Bacillus mesentericus, and Bacillus subtilis.

A critical analysis and evaluation of the steps necessary for measuring the amount of bacterial degradation in terms of reduction in tensile strength have been made for the purpose of standardizing the technique used. By the application of this technique it is proposed to study fundamental questions related to the life of felts. It is hoped that more efficient bactericidal treatments of felts in operation will result. It may be that bacteria-resistant felts can be developed.

Introduction

The technique developed involved the elimination of all variables which might influence the effect of a given species of wool-decomposing bacteria upon a standard test strip of felt.

Woolen felts suffer degradation as the result of mechanical, chemical, and biological agents. The degree to which these agents can be controlled affects the life of felts on the machine. The biological degradation includes the destructive action of certain forms of bacteria, molds, algae, and insects. The action of bacteria on woolen felts has been investigated by various workers; however, the technique used has not been standardized. The present study is the beginning of a series of investigations whose first objective is to standardize the bacteriological technique used. It is hoped that these investigations will lead to a much better understanding of the mechanism of bacterial degradation of felts as well as how to prevent it most effectively.

It appears that MacInnes *(1)* in 1922 was the first to report the damage done to felt by a single species of bacteria, namely, *Bacillus mesentericus*. In 1934 one of the authors *(2)* isolated 42 apparently different species of bacteria from a damaged felt. Seven of these were selected for identification and further study because of their ability to discolor felts, to disintegrate wool fibers and, in some cases, to liquefy gelatin. The seven species selected were identified as *Alcaligenes bookeri, Bacillus subtilis, Serratia marcescens, Sarcina lutea, Alcaligenes faecalis, Escherichia coli,* and *Aerobacter aerogenes*. The gelatin-liquefying species, which were the first four named, produced the greatest damage on felts. Of these four active species, *Alcaligenes bookeri* was selected as the test organism for investigating the effect of pH on the susceptibility of felts to degradation. The range of pH from 4.0 to 7.2 was used and the results showed clearly that felts were rapidly disintegrated at a pH of 7.2, whereas they were not noticeably affected at a pH of 4.4. Mendrzyk *(3)* reported that *Bacillus subtilis* was the most active of the bacteria which disintegrated felt.

A more general treatment of the subject has been made by other workers, who also discuss the prevention of biological degradation under mill operating conditions. TAPPI Special Report 127 *(4)* was based on the replies made by mills which had experienced difficulties with algae and other biological growths on their felts. Shera *(5)* found that bacterial slime was an active cause of felt degradation. At that time (10 years ago) slime control methods had proved their effectiveness in reducing the degradation of felts with the result that the life of felts was increased 15 to 20%.

The different causes of felt degradation were recognized by Bartsch *(6)* who considered biological agents as an important cause. McGrath *(7)* discussed the disintegration of wool felts by the combined action of bacteria and warm water. Microphotographs of normal and damaged wool fibers showed the effect of biological action. She stressed the beneficial effect of felt shower water treatment in prolonging the life of felts. About 18 months ago a series of answers appeared in *Paper Mill (8)* in response to an inquiry about causes of holes in felts. The final reply was from the inquirer who stated that the presence of bacteria harmful to wool had been definitely established in their damaged felts and that the application of Dowicide G (sodium pentachlorophenate) appeared to increase the general felt life in their mill.

In 1939 Smith *(2)* isolated 23 apparently different species of bacteria from a set of damaged felt samples submitted to The Institute of Paper Chemistry. So far as it was possible to identify these bacteria, this was done with the result that 17 were fairly well identified and the remainder could not be classified satisfactorily. With the exception of *Bacillus subtilis* none of these has been reported previously as having been isolated from damaged felts. The list is as follows:

Streptococcus lactis
Staphylococcus albus
Rhodococcus rosaceus
Sarcina lutea
Pseudomonas aeruginosa
Pseudomonas fluorescens
Alcaligenes bookeri
Alcaligenes faecalis
Escherichia coli
Proteus vulgaris

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 17-20, 1941.

[1] Research Assistant, The Institute of Paper Chemistry, Appleton, Wis.

Bacillus (6 species, namely, *albus, megatherium, mycoides, niger, subtilis,* and one unknown species).
Actinomyces (1 species)

Prior to this time it was believed that darkening of the felt during incubation with a given species of bacteria was a reliable indication of felt degradation; however, some of the above-named species were found to produce a marked degradation without any appreciable darkening of the felt. Microscopic examination revealed an extreme state of degradation of the wool fibers in these cases. Figure 1 is a microphotograph of normal wool fibers. Figure 2 shows a fiber in the early stage of degradation by a species of *Bacillus* 218, whereas Fig. 3 shows later stages

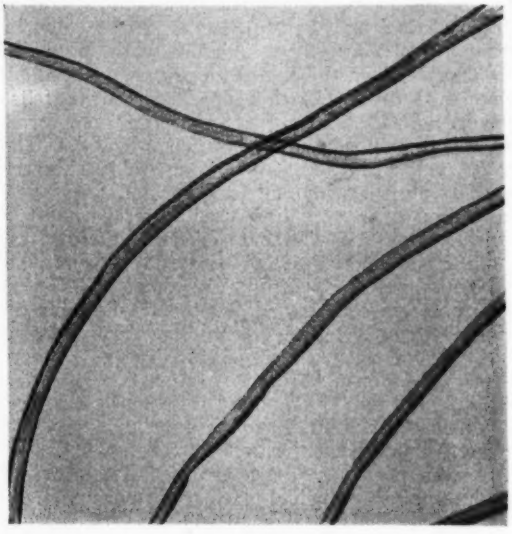


FIG. 1
Normal Wood Fibers (× 50)

of degradation by the same species. Finally in Fig. 4 the complete degradation of parts of fibers is shown clearly. (These figures are reproduced through the courtesy of the Appleton Woolen Mills.) It should be noted that Figs. 2 to 4 are quite similar to microphotographs which McGrath *(7)* obtained by allowing the felts to incubate in certain mill waters. It was

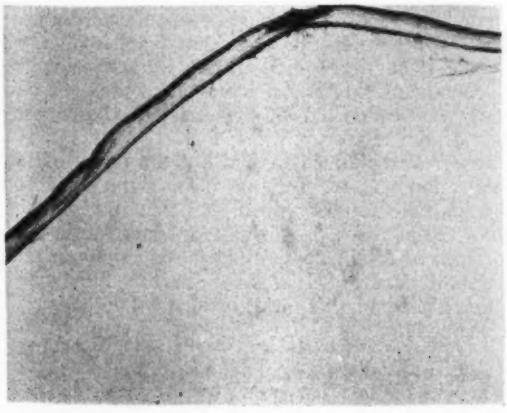


FIG. 2
Early Stage of Degradation of Wool Fiber by *Bacillus 218* (× 100)

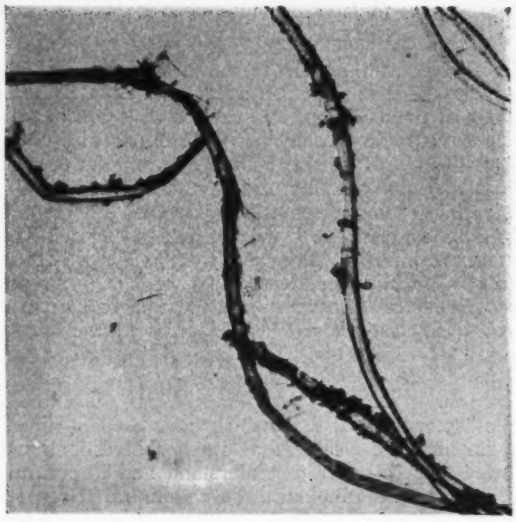


FIG. 3
Later Stage of Degradation of Wool Fibers by *Bacillus 218* (× 50)

thought that the degradation which was observed microscopically might be correlated with the tensile strengths of the felts. After considerable experimentation a procedure for preparing test strips of felt was adopted. Strips were cut 2 inches wide in the woof direction and 5 inches long in the warp direction. Others were cut 2 inches wide in the warp direction. After sterilization in the Arnold steamer, these were inoculated with pure cultures of known bacteria and incubated suitable periods of time at 37 deg. C. The incubated felts were rinsed, dried, and conditioned for testing on the Amsler tester. The tensile strength of inoculated felts in which degradation had occurred was much lower than that of control felts. Reductions of 25 to 85% occurred in the cases of degradation caused by pure cultures of the isolated species of Pseudomonas, Alcaligenes, and most of the baccili.

In 1940 Smith *(2)* isolated from a set of damaged felts nine species of bacteria which produced marked degradation on test strips of felt as measured by the reduction of tensile strength and as indicated by the color, odor, and appearance under the microscope.

FIG. 4
Complete Degradation of Wool Fibers by *Bacillus 218* (× 100)

These species were identical to nine which were listed under the 1939 isolations.

At this point the present authors wish to refer briefly to the paper presented at the 1940 Annual Meeting of the Technical Association of the Pulp and Paper Industry by Weidner *(9)*. He reported certain mill studies involving the disinfection of felts during normal operation and just prior to shutdown periods. Dowicide G (sodium pentachlorophenate) was found to be the most effective Dowicide used. Wet felt life increased from 10 to 60% and pickup felt life from 30 to 100% while these treatments were in progress. Bacterial degradation was believed to have been responsible for the short felt life prior to the treatments.

Factors for Investigation

The bacteriological data which have been obtained thus far indicate clearly that further investigations are necessary in order to understand and to control more efficiently the biological degradation of felts. It might be well to enumerate briefly what it is desired to learn from such investigations.

(1) In a given mill what are the sources of proteolytic bacteria (for wool is a protein and it is susceptible to many proteolytic bacteria)? These sources might be one or more of the following: size, pulp, waste paper, raw water, or the system itself.
(2) At what stage in the life of a felt is biological degradation most pronounced? (During shutdown periods, during the early or later part of the life of the felt?)
(3) Is biological degradation dependent on, or independent of, mechanical and chemical degradation?
(4) Does the pH of the wool itself affect in any way the susceptibility of the latter to proteolytic bacteria?
(5) During the bacterial degradation of wool, what changes occur in the pH and how do these changes affect the bacterial growth in progress?
(6) What is the effect of residual grease in wool on the susceptibility of the latter to proteolytic bacteria?
(7) Do mixed cultures of proteolytic bacteria act similarly on wool to pure cultures of these same bacteria?
(8) How can existing methods for preventing biological degradation of felts in operation be evaluated and improved?
(9) Is it possible to prepare woolen felts which will resist biological degradation?
(10) Is the mechanism of bacterial degradation of wool an enzymatic process?
(11) What is the effect of wet sterilization of wool on its chemical constitution?

Last summer experimental work was begun by the senior author of this paper on developing a standardized bacteriological technique for studying the biological degradation of felts. The early bacteriological work on felts at the Institute consisted principally of isolating and identifying bacteria which attack woolen felts. It was found: (1) that bacteria attack felts much more rapidly when a small amount of nutrient has been added to the felt; (2) that bacteria which attack felts are almost always gelatin-liquefying bacteria; (3) that felt degradation by bacteria begins quite slowly but, after starting, it accelerates rapidly; and (4) that felt degradation by bacteria can be prevented *in vitro* provided a low pH is maintained. It was believed that tensile strength could be used as a criterion of the bacterial degradation of felt.

A systematic study of every conceivable factor which might influence the inoculated felts was considered necessary in order to standardize the tensile test. Some idea of the general complexity of this study can be had by noting the factors which have been considered up to the present time. Starting with the felt itself, the factors considered were: the quality of the felt, the size of the test strip, the direction in which the strip is cut, the sterilization procedure, the species of bacteria to be used as the test organism, the medium for suspending the culture, the amount of inoculum, the wetness of the test strip during incubation, the time of incubation, the conditioning of the incubated strips for tensile tests and, finally, the conditions of tensile testing.

Based on previous experiences and on the type of tensile tester available, it was decided to standardize the test strips by cutting and trimming them from new felt approximately 5 inches long in the warp direction and 2 inches (±2.0%, which corresponds to one half the diameter of the thread) in the woof direction. Four test strips constituted a set for a given series of sterilization or incubation conditions and the average tensile strength for four strips served to minimize any abnormal effects due to the quality and weaving of the felt.

Development of Procedure

In order to select a satisfactory procedure for sterilizing test strips, sets of 4 were treated by intermittent steam sterilization, by steam for 20 minutes at 15 pounds pressure (121 deg. C.), by a combination of ethyl alcohol and then ethyl ether and, finally, by heating at 121 deg. C. for 2 hours while immersed in xylene. Neither the intermittent nor the alcohol-ether forms of sterilization produced sterile felts; however, both the steam pressure and xylene forms of sterilization produced perfectly sterile felts. The average tensile strengths were comparable in every type of treatment with that of untreated test strips. The method of sterilization used in preparing test strips for Series 1-5 was that of heating the dry test strips in individual large Petri dishes for 20 minutes at 15 pounds steam pressure (121 deg. C.). These test strips were conditioned for the tensile tests by leaving them in a constant humidity (65% relative humidity) and constant temperature room (70 deg. F.) overnight. They were tested on an Amsler tester using the small ram, 4000-pound scale, and at a speed of 2¾ inches per minute.

Prior to inoculating the first sets of test strips of felt, it was necessary to determine approximately the volume of water which each test strip could retain while kept on a horizontal surface. The volume found was 25 cc. At first it was unnecessary to add water during the incubation period but later it was found advisable, depending upon the rate of evaporation from each test strip.

A species of Pseudomonas which had been isolated from a damaged felt in September, 1940, was selected as the first test organism because one of the authors *(2)* had found this species to be active in felt degradation. Series 1 of the inoculated felts was planned to obtain information concerning the effect of known concentrations of the test organism and the time of incubation. It was learned that the incubated felts had to be dried before they were conditioned for tensile tests. No significant reductions in tensile strength resulted in the test strips which had been incubated for 96 hours at 37 deg. C. and nothing was learned about the effect of the concentration of the test organism.

Series 2 was planned to find out the effect of the concentration and of the type of medium used for suspending the test organism. Nutrient and lactose broths were used for preparing two concentrations of the organism. Again no significant reductions in tensile strength occurred. It was thought that the incubation time of 96 hours might be insufficient and Series 3 was planned to verify the effect of 7- and 14-day periods of incubation. Tensile reductions of 15-16% were experienced by test strips which had been inoculated with approximately 2.5×10^9 bacteria per strip. Seven days of incubation appeared to be sufficiently long.

Smith *(2)* had previously obtained large reductions

in tensile strength for a few test strips inoculated with this species of Pseudomonas. It was suggested that possibly bacterial degradation would start more rapidly if the test strips were chemically or mechanically damaged prior to sterilization. When Series 4 was run for the purpose of checking this point, no additional information was disclosed. Considerable doubt was felt concerning the ability of this species of Pseudomonas to attack felts; therefore, it was decided to make gelatin stabs of this organism and of all other species which had been selected for use in this investigation. The ability to liquefy gelatin had not changed appreciably from that shown when the respective cultures had been isolated. This indicated that these cultures should still retain their ability to attack wool.

Bacillus megatherium was the most active gelatin-liquefying culture of the eleven species tested and it was selected for inoculating the test strips in Series 5. The results showed a tensile reduction of 15.5% for an inoculum of approximately 2.5×10^7 bacteria per felt and a reduction of 87.3% for an extremely heavy inoculum in the case of the one test strip which was used for this test.

A careful comparison of the technique being used was made with that which was used in the earlier work at the Institute. It appeared that the procedures differed principally in three respects: (1) the felts were wetted with tap water before sterilization; (2) less nutrient broth was used per test strip; and (3) each felt strip was turned over on the third or fourth day of incubation when 5 cc. of a 1:4 dilution of nutrient broth were added to each felt strip. Series 6 was planned to test in quadruplicate the effect of heavy suspensions of 5 different species selected from the stock collection of 14 by incorporating all of the differences in procedures just mentioned. Table I summarizes the average tensile strengths and the percentage reduction in tensile strength for each of the 5 bacteria (as calculated from uninoculated but sterilized control strips). It is evident that each of these cultures can degrade felt rapidly if the proper conditions have been provided.

An important and hitherto unsuspected factor appeared when various sets of control felt strips were compared. Table II gives the average tensile strengths and the percentage reductions in tensile strength as compared with untreated felt strips. Felt strips which were wetted prior to sterilization suffered a loss in tensile strength of about 32%, whether incubated or not, whereas felt strips which were sterilized dry and kept dry suffered a loss in tensile strength of about 5%. When dry sterilized felts were wetted and incubated, the loss in tensile strength was nearly 14%. These results offer an explanation for the failure to obtain marked bacterial degradation in Series 1 to 5, in which the test strips were sterilized dry and wetted with suspension before incubation. The wetted felt strips probably suffer a chemical degradation upon sterilization and, as a result, they become more susceptible to bacterial degradation. The

TABLE I.—TENSILE STRENGTHS OF FELT STRIPS INOCULATED WITH VARIOUS SPECIES OF BACTERIA

Species of Bacteria Used	Average Tensile Strength, lb.	Reduction in Tensile Strength, %
Pseudomonas (species 1)	51	70.6
(species 2)	31	82.1
(species 3)	91	46.4
Bacillus agri var.	35	79.8
Bacillus mycoides	78	54.9

TABLE II.—TENSILE STRENGTHS OF CONTROL FELT STRIPS

Treatment of Control Strips	Average Tensile Strength, lb.	Reduction in Tensile Strength, %
Untreated	254	0.0
Sterilized dry, wetted, then incubated.	219	13.8
Sterilized dry, wetted, not incubated..	237	6.7
Sterilized dry, incubated, then wetted.	242	4.7
Sterilized dry, not incubated, not wetted	237	6.7
Wetted, sterilized, then incubated....	173	31.9
Wetted, sterilized, not incubated.....	172	32.3

changes caused in the wetted wool fibers by heating for 20 minutes at 15 pounds pressure (121 deg. C.) are being studied and will be reported later. Since the reduction in tensile strength was uniform within each set of 4 control test strips and from series to series, it appears that the wool fibers have become uniformly susceptible to bacterial degradation. Hence, for the time being, this type of sterilization will be used.

Pseudomonas (species 2) was selected from Table I as the test organism for Series 7 and 8 in which the effect of wet and dry sterilization by steam was confirmed. Certain variations in the procedure used for Series 6 were made in order to evaluate their necessity in a standardized procedure. A few sets of inoculated felt strips showed considerable reductions in tensile strength at certain points but, in general, no conclusive information was obtained concerning changes in the procedure used in Series 6. Considerable contamination seemed to have entered the suspensions placed on the sterilized felts because no contaminants were found in the stock culture, whereas they appeared on the agar plates which were poured to estimate the concentrations of the suspensions. These contaminating bacteria are being checked to find whether they were responsible for the irregular results obtained in these two series.

While this verification was being made, it was decided to select a species of bacillus from the list in Table I. *Bacillus agri* var. was selected for the inoculations in Series 9. Table III shows in considerable detail how each set of 4 test strips was prepared for incubation. The average tensile strength for each set of four felt strips and the percentage reduction in tensile strength calculated from the proper set of controls are included in this table. No stacking of Petri dishes containing test strips was made during the sterilization used for the test strips reported in Table III. When the effect of stacking dishes containing control strips in pairs was investigated, it was found that the felts in the lower dishes averaged 178 pounds tensile strength against 202 pounds for the felts in the upper dishes. Thus stacking should be avoided during sterilization in order to obtain uniform losses in tensile strength due to sterilization and, therefore, to produce the same degree of susceptibility to bacterial attack.

The data obtained from this series indicate clearly that small inocula of *Bacillus agri* var. under certain conditions (*see* Table III) cause approximately the same high tensile losses in inoculated test strips as do large inocula under most of the conditions which were used. The exception was the set of felts which was not wetted prior to sterilization (Numbers 29-32). This again confirms the effect of sterilizing wetted felts which has been referred to in other test series. The wetting agent appears to be important, but at this time it is not certain whether tap water, distilled water, or saline should be used. Sterilization

TABLE III.—SERIES 9. USING *BACILL US AGRI* VAR. AS THE TEST ORGANISM

Felt Number in Series	Added to Strip Prior to Sterilization: Tap Water, cc.	Distilled Water, cc.	Saline, cc.	Suspension of Bacillus: Distilled Water, cc.	Saline, cc.	Nutrient Broth, cc.	Added After Suspension: Distilled Water, cc.	Nutrient Broth, cc.	Estimated No. of *Bacilli* per Strip	After 3 Days of incubation at 37° C.	Tensile Test: Ave. value	Reduction, %
A, 1-4	15	..	..	10	..	..	..	5	2.6×10^9	.....	53	68.6
A, 25-28	..	15	..	10	..	..	..	5	2.6×10^9	Turned	35	79.3
A, 5-8	..	..	15	10	..	..	..	5	2.6×10^9	over;	50	70.4
B, 13-16	15	..	..	..	..	10	5	..	8.5×10^2	5 cc.	46	72.8
B, 9-12	15	..	..	..	10	..	..	5	2.3×10^2	sterile	115	31.9
B, 17-20	15	..	..	10	..	..	..	5	3.1×10^2	distilled	105	37.9
C, 17-20	15	..	..	10	..	..	..	5	3.1×10^2	water	105	37.9
C, 21-24	..	..	15	10	..	..	..	5	3.1×10^2	added	51	69.8
C, 35-38	15	Control set for Groups A, B, and C					..	..	.....	No incubation.	169	(24.2)*
D, 33-34	15	(30 minutes)		10	..	..	..	5	3.1×10^2	Turned over; 5 cc. sterile distil. H_2O added.	58**	62.0
D, 51-52	15	(30 minutes)		Control set for Group D			..	..	.....	No incubation.	153**	(31.4)*
E, 29-32	Not wetted before sterilization			..	..	30	..	..	2.2×10^9	Turned over; 5 cc. sterile distil. H_2O added.	177	20.6
E, 47-50	Not wetted before sterilization			Control set for Group E			..	..	.....	No incubation.	223	0.0*

* Calculated from dry sterilization value of 223 pounds (Felts 47-50). All controls except 51-52 were heated 20 minutes under 15 pounds steam pressure.

** Only two test strips were run in these sets.

of wetted felt strips for 30 minutes instead of 20 minutes increased the tensile loss for the control strips but not for the inoculated strips. The liquid used for suspending the bacteria, influences their effect on the test strips. If dilute suspensions (1000-3000 bacteria per felt) are used, the data indicate that the bacteria should be suspended in nutrient broth.

Technique

While the technique has not been completely standardized at present, sufficient data have been obtained to indicate the best procedure for continued study. The technique will be described briefly at this point: the test strips are cut and trimmed from new felts approximately 5 inches long in the warp direction and 2 inches (±2.0% error) in the woof direction. Each strip is then saturated with tap water and transferred to a large Petri dish. Without stacking these dishes containing wetted strips, they are heated 20 minutes under 15 pounds of steam pressure. The suspension of bacteria is made in nutrient broth from 24-hour agar slant cultures of the test organism (in the case of Series 9, *Bacillus agri* var.) and adjusted to a concentration of approximately 200 bacteria per cc. Each sterile felt, except the control set of felts, receives 10 cc. of the bacterial suspension well distributed over its surface and then 5 cc. of sterile distilled water. The inoculated felts are incubated at 37 deg. C. for 3 days when they are turned over asceptically and 5 cc. of sterile distilled water are added. After a total incubation time of 7 days, the felts are removed, rinsed carefully 4 times in tap water, labeled, and dried by hanging them for 1.5 hours in a hot-air oven maintained at approximately 100 deg. C. The dried felts are kept overnight in a constant humidity (65% relative humidity) constant temperature (70 deg. F.) room. The dry tensile strength is obtained by means of the Amsler tester, using the small ram, the 4000-pound scale and operating at a speed of 2.75 inches per minute.

The authors plan to continue the use of the above technique, or minor modification of it, for studying the various phases of biological degradation of felt which were outlined earlier in this paper. They are certain that much information will be obtained by the systematic application of a standardized technique, any factor of which can be varied at will.

Literature Cited

(1) MacInnes, Jean, *Paper Trade J.* 74, no. 14:41-42 (April 6, 1922); *Making Paper* 4, no. 12:344-345 (June, 1922).
(2) Smith, Olga A. Unpublished work, The Institute of Paper Chemistry, 1934-1940. Part of this work is now published through the courtesy of the Appleton Woolen Mills.
(3) Mendrzyk, H., *Wochbl. Papierfabr.* 68, no. 26:485-488 (June 26, 1937); *Papier-Fabr.* 35, no. 16:125-128 (April 16, 1937); *Pulp Paper Mag. Canada* 38, no. 12:843-844, 846, 848 (November, 1937).
(4) TAPPI Special Report 127. Dec. 5, 1929. New York, Technical Association of the Pulp and Paper Industry. 7 p.
(5) Shera, Brian L., *Paper Trade J.* 92, no. 20:55-57 (May 14, 1931).
(6) Bartsch, Johannes. Verein Zellstoff-und Papier-Chemiker und-Ingenieure, *Jahresbericht* 1934:63-70; *Papier-Fabr.* 32, no. 25:297-298 (June 24, 1934); *Tech. Bull.* 13, no. 4:42; no. 5:58; no. 7:88 (April, May, July, 1936).
(7) McGrath, Louise E., *Paper Ind.* 18, no. 4:281-284 (July, 1936).
(8) *Paper Mill* 62, no. 21:23; no. 22:19; no. 23:23; no. 26:19; no. 28:22; no. 33:24 (May 27, June 3, 10, July 1, 15, Aug. 19, 1939).
(9) Weidner, John P., *Paper Trade J.* 110, no. 19:36-38 (May 9, 1940); *Pacific Pulp Paper Ind.* 14, no. 4:25 (April, 1940); *Tech. Assoc. Papers* 23:416-418 (June, 1940).

Inks and their Relation to Paper*

By George Cramer[1]

Abstract

Paper surfaces, coated and uncoated, are considered and investigated from the ink man's point of view. The topic of discussion is centered around the application of inks by the three graphic processes, namely, letterpress, lithography, and gravure. In each case, drying, penetration, smoothness of lay, and color values are considered.

In this paper, it is the author's intention to give the paper technician an insight into the problems confronting the ink chemist in connection with the development of inks for the many special types of paper now being used by the graphic arts. The various characteristic surfaces as developed by the papermaker for certain specific jobs in reality demand that ink formulations be of such a nature that they conform properly with the type of job to be produced as well as being suited to the process to be used in the

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 17-20, 1941.

[1] Director of Research, Sinclair & Valentine Co., 611 W. 129th St., New York, N. Y.

completion of a newspaper, a magazine, an advertising piece or even a reproduction of a photograph or work of art. The papermaker is not as vitally interested in whether or not a job is to be run by the gravure, offset, or typographic process; but this phase is an important one to the inkmaker, as it involves radical formulation differences. The newspaper field is apart from the graphic arts as it is generally known; yet it is one of the most important phases of printing and requires a specific stock as well as a specialized ink to make the production of newspapers possible. From this we can proceed through the entire field of the graphic arts, ending with the most complicated multicolored reproductions and deduct therefrom the requirements needed of both paper and ink in order to make satisfactory copy. The method of approach which we intend to follow in this discourse will picture the various paper stocks and describe them from the inkmakers' point of view, indicating those properties which will either enhance or detract from the results obtained when ink is impressed on paper. For obvious reasons, we find it desirable to start an investigation of the proper ink characteristics for a certain stock by printing it either by gravure, typography, or offset, using such ink as has been found by experience to have the necessary requirements. From this point the inkmaker may deem certain changes necessary to produce results that will be more in keeping with the ultimate customer's conception. Should the initial proving indicate an unusual condition, then it is the inkmakers' worry to try to determine the next steps to be taken in formulation changes. Examinations of paper surfaces under the microscope have helped considerably and reproductions of enlarged sections will help to show the points in question from the inkmakers' angle.

Nature of Paper Surfaces

Newsprint

Newspaper stock as seen under the microscope immediately describes the nature of the ink which will be best suited for good results. The soft, porous nature of this stock and the process involved presupposes a drying condition entirely by penetration. It goes without saying, however, that this penetration must be definitely limited in order to avoid strike-through or oily stains on the opposite side of the sheet. The inkmaker has at his command a group of ingredients which will limit or avoid such undesirable characteristics provided, however, the newspaper itself is not of a nature too closely approximating that of blotting paper. It is not within the inkmakers' province to suggest what should be done in cases of this kind, but it suffices to make note of difficulties which may be the result of stocks that are too absorbent for newsprint work.

Machine-finished and Supercalendered Paper

From the newsprint field we approach the use of machine-finished and supercalendered stocks. It is with these stocks that the inkmaker encounters considerable difficulty. A minute examination of these two stocks reveals that the condition as developed on printing—i.e., shiny and dull spots, etc.—can be attributed to hard and soft spots in the stock. These spots, in most cases, correspond to the hills and the valleys produced as the paper is formed, which upon calendering or supercalendering are compressed to form a nonuniform surface. Two distinct problems confront the inkmaker in the development of an ink which will produce suitable graphic reproduction on such stocks. The first efforts expended are generally those in the nature of increased penetrating power of the ink. When the ultimate has been obtained in this direction and the results are still unsatisfactory, then it falls upon the ink chemist to look farther into his pigment formulation and obtain an apparent uniformity of printed effect by incorporating such materials in his formulation which will be inclined to mask the mottle by means of a general dulling effect.

Machine-coated Paper

The recent development in papermaking of the machine-coated stock has presented the inkmaker with a new set of conditions with which he must struggle to produce prints of a satisfactory nature. Undoubtedly, the papermaker did not intend that this new paper should replace the usual coated stocks which have been produced for a good many years. It is unfortunate, however, that the buyer of paper has somehow gotten the impression that results on machine-coated stock should be equally as good as those produced on coated stocks. The burden of this fulfillment seemingly has fallen on the inkmakers' shoulders. Situations arising from these preconceived notions are all the more unfortunate since our efforts thus far in accomplishing the expected results have not been in keeping with the demands. The struggle in producing a satisfactory ink for machine-coated stocks is not an easy one and involves several new factors with which the ink man has not previously contended.

In the first place, the amount of coating applied is comparatively low, thus presenting a surface for printing which is not much better than the surfaces presented by either machine-finished or supercalendered stocks. Hard and soft spots found throughout the entire area of these stocks cause an unevenness of print which is not a simple matter to overcome as far as inks are concerned. The inkmakers' first consideration then must be to try to correct this deficiency by juggling his formulations so that they will in part work their way through the denser areas and in this wise produce a print free from mottle. The usual procedure followed by the inkmaker in overcoming such uneven printed effects may, in some cases, lead him into still other difficulties, such as drying. Penetrating oils, which are quite frequently used to alleviate a nonpenetrating condition, may lead to the development of an ink that will not fulfill the usual high-speed production schedules generally existent where machine-coated papers are employed. General ink practice has indicated that slower drying inks are more inclined to produce uniform results as far as printing effects go; but, as mentioned above, this is not the practice that the inkmaker dare follow if he hopes to satisfy his customer.

One might get the impression that the heat-setting inks may not encounter the same difficulties as experienced by the conventional type. This is not the case, however, inasmuch as the actual results obtained in the production of magazines and journals using such baking processes have not indicated any greater smoothness of print or freedom from mottle. The high-speed gravure process and the papers that are occasionally run for catalogs and advertising pieces show a decided tendency toward prints that are mottled due to the shiny and dull areas. Strangely enough, when gravure jobs are examined under the microscope, the shiny spots will always correspond

with an apparent hill or hard spot in the stock. Ordinarily, one would imagine that due to these inks drying at such a terrific rate of speed, that no time would be allowed for the ink to penetrate through the softer areas or valleys of the stock. In these cases, the drying time required for the ink is measured in seconds or fractions of a second; and yet the development of mottled prints is of such a nature that the inkmaker has found it difficult to accomplish much in this direction. The inkmaker can correct this condition by the use of certain pigments in his formulations which dry with a dull or semidull finish. By using such a formulation, the mottled effects are masked inasmuch as the entire printed area is of a uniform finish rather than one that is made up of areas that are both shiny and dull. The inkmaker hopes that some way or another the paper manufacturer may be able to do something with this stock to assist in overcoming this apparently difficult situation. From the inkmakers' standpoint, it appears as though an increased and a more uniform coating over the body stock would aid materially in securing that uniformity of printed effect that the graphic arts demands. When we make this suggestion we realize that by so doing the machine-finished stocks will actually approach the conventional coated stocks as they are now produced and for this reason an advantage may be lost from an economical point of view. This brings us back practically to where we stated that the buyer of printing expects to get coated paper results on machine-coated stocks, since the added cost of increased coatings probably would more than absorb the present advantage of these stocks. Undoubtedly many papermakers have other solutions pending which would overcome the inkmakers' present difficulty with machine-coated stocks.

Machine-coated stocks give the inkmaker still another problem with which he does not have to contend in coated stocks. Most likely the real reason for this condition is again due to the fact that the coating on these stocks is relatively thin. The condition which I have in mind is that which we notice when we examine these stocks through the high-powered magnifying glasses. The stock surface is full of pin holes both large and small. Apparently the number of these pin holes per square inch is immaterial, but it is their depth which gives the inkmaker his greatest concern. The pressman has considerable leeway in avoiding notice of this surface condition by regulating his make-ready. The deep pin holes, however, even though they are not numerous, are difficult to bridge. Again the pressman, in an effort to smooth out these rough spots, may even increase his impression beyond reasonable limits. In so doing, he is running into difficulty with his fine halftones and after considerable effort, his only other hope is that the ink man may be able to come to his rescue. Without a too careful examination, the first impression might be that the ink was not sufficiently developed for fine halftone work; yet, on further examination, the true condition is revealed. Ink consistencies may be changed either to a short, full body or even to a long body; this depending entirely on certain specific stock conditions which are difficult to run down. Unfortunately, in most cases whenever an ink correction is made to improve halftones, the solid areas usually suffer. The reverse is true when solid prints need to be corrected. As a rule, a compromise is effected and in spite of the best efforts put forth by the printer and the inkmaker, the buyer of printing is quite frequently dissatisfied. This is where the papermaker could be most helpful. While it may be a simple matter for the paper manufacturer to avoid or eliminate the pin holes usually found on the surface of machine-coated stocks, yet it is a phase of his work which undoubtedly is giving his research staffs considerable concern. Closer cooperation between all parties involved will eventually lead to machine-coated stocks of outstanding merit.

Regular Coated Paper

The results generally obtained when regular coated stocks are employed by the printer or the lithographer are as a rule far superior to those obtained when machine-finished, supercalendered, or machine-coated papers are used. Unquestionably the improved graphic effects are on the result of the increased coating weights applied to these stocks. As the inkmaker looks at these stocks, he notes that the coating film is sufficient to bury the hills and valleys of the body stock and for this reason he is not confronted with variations in printed matter as is experienced when the cheaper grades of paper are being used. Coated stocks, however, are not without some drawbacks that greatly concern the inkmaker. First among these is the difficulty sometimes experienced due to the coating being picked from the body stock in the printing operation. Under ordinary circumstances this is a relatively simple matter to correct; yet there are times when, due to conditions of the press, of the paper and even of the form itself, it is almost impossible to proceed and make a good job. Quite frequently, the addition of a waxy compound, or a mineral or a sheep's wool grease will reduce the tack of an ink sufficiently to prevent any further difficulty with picking. The papermaker can aid in overcoming this difficulty by increasing the pick as is indicated by the various wax tests. He must, however, be somewhat cautious in increasing this factor, for as the pick test is increased experience has indicated difficulty is noted in the production of good halftone printing. The ink additions as just indicated tend to serve a double purpose, as quite frequently picking conditions are developed due to too fast drying. The question might be raised as to why certain inks are inclined to dry too fast and why such a condition was allowed to come about. Such things generally occur when all the conditions under which an ink is to be used are not fully explained to the inkmaker. Thus, if an ink which was produced for summer consumption, during periods of high humidity, is used when the humidity suddenly drops down due to artificial heating of the pressroom, then a condition as just mentioned may arise.

Chalking conditions are occasionally experienced when certain coated stocks are used. For reasons most likely known to the papermaker, every now and then a printer or a lithographer will run into a situation where all of the vehicle and binder of the ink is seemingly entirely absorbed by the coating on the paper. Unfortunately, such a situation does not become known until the major portion of the job is off the press. The correction is relatively simple and can be accomplished by using an increased amount of drier. By this means, the drying of the ink is speeded up to such a degree that the paper does not get the opportunity to withdraw the vehicle from the pigment of the ink. The logical way of overcoming chalking conditions is to use a percentage of heavier binding varnishes. When following this procedure, the chances of avoiding press difficulties are more

certain, as increased driers are quite frequently found to be troublesome. In this same category we find the ever present difficulties with gold ink printing. Sadly enough, the metallic powders used in the production of gold and silver prints are not especially compatible with the varnishes used as vehicles in their development. It appears as though the metallic vehicles are less inclined to blend with the powder than with the paper; thus we get a condition similar to chalking, but ordinarily put under the classification of nondrying. The inkmaker has two important phases to consider in connection with this problem. By increasing the viscosity of the varnishes used in the production of a specific gold ink, he can avoid the apparent nondrying condition. This step, however, does not enhance the brilliant effect which is looked for in the production of metallic printing. In order to secure the best results with these inks, the inkmaker has found it necessary to try each and every stock that is to be used for this purpose and by testing a series of formulations, he can choose the one which gives satisfactory adherence and yet a maximum of brilliancy. From the inkmakers' standpoint, it appears as though the penetrating factor of the paper is one of extreme importance in gold ink work. If the paper is too tight, then, while there will be no difficulty as far as drying is concerned, the effect will be dulled, due to the varnish remaining entirely on the surface. If, on the other hand, the coating on the paper is too absorbent, then the aforementioned dusting condition will result. There apparently appear to be some stocks that are ideally suited for this type of work; papers that just allow enough penetration of varnish to produce a leafing effect and thus brilliancy; and yet, do not penetrate enough to cause poor binding. Metallic printing needs the cooperation of the papermaker, the printer, and the ink manufacturer for best results.

Within the past few years, the papermaker has developed a new stock designed particularly for the production of gloss ink printing. In doing this job, the papermaker is to be complimented, for without his assistance in this case, it would be impossible to produce the beautiful glossy results which have become so popular recently. The only comment that the inkmaker might make in connection with these stocks is that it would be desirable to secure more uniformity, as at present, it appears to be difficult to produce comparable results on all receipts of gloss ink stocks.

Every now and then, the inkmaker is confronted with a phase of printing in coated stocks that while it bears a similarity to the difficulty experienced with machine-coated stocks, is, nevertheless, quite different. In this particular case there appears to be a certain stock condition which creates a greater affinity of the ink to the printing plate rather than to the paper. Those cases that we have in mind show prints, particularly in halftones, that are not sharp and clear. In his effort to produce better printing effects, the inkmaker makes note of the fact that an accumulation of ink on the plate is responsible for the condition as developed. The use of a variety of stocks indicates that there are some stocks which will clean the plates of ink as they are being impressed; yet others are inclined to be somewhat nonreceptive. In most cases, the inkmaker will adjust his ink by reducing its cohesiveness. Apparently, it is easier to make such adjustments with the ink rather than to reject a lot of paper; yet, as a rule, adjustments of this kind must be made at the sacrifice of some other printing quality. Inks that are too short are inclined to develop press difficulties and the inkmaker can proceed just so far. Papermakers no doubt have made a careful study of paper coating in respect to ink receptivity.

Offsetting of Ink

Offsetting of ink is still one of the pressmen's major problems; this, in spite of the fact that the recent introduction of sprays have helped considerably in this direction. The inkmakers' phase of this problem centers around the development of formulations that set rapidly on the stock in question. Frequently, however, stock surfaces are of such a nature that in spite of every effort on the inkmakers' part there still is this tendency toward the smudging of the back side of the sheet. The papermaker has been helpful in that there are on the market today a number of coated stocks wherein the ink will set almost immediately. There remains only a wider adaptation of such coating formulations in order to assure still greater relief from the annoyance and spoilage caused by offset.

Static Electricity

Frequently static developed during the printing operation is a contributing factor as regards offsetting. The printer and the printing press machine builders have recognized this difficulty and have added to their equipment static eliminators, such as gas burners, tinsel, and special equipment. There is little that the inkmaker can do in this respect except to be sure that his ink will set up as fast as is consistent with the other requirements of the job; yet when offset does occur, the inkmaker is the first to be condemned.

Drying of Inks

The drying of printing and lithographic inks is the principal concern of all directly connected with the production of printing. The inkmaker is constantly on guard making daily checks on specific stocks to be sure that an ink will dry within the specified time. Time and again, in spite of all of these efforts, a complaint will be made in regard to the poor drying of a certain ink. Rechecks on the items in question fail to indicate any specific reason for the condition as developed. In most instances, subsequent investigation reveals that an unduly high moisture content in the stock has added to the drying time of the job in question. This added moisture may or may not have been a stock condition, but may be due to high humidities prevalent in the paper storage rooms or in the pressroom itself. The paper industry has developed means for assuring proper moisture contents and preconditioning of papers. Strangely enough, in this instance, the papermaker considers conditioning only from the standpoint of avoiding the development of wrinkles due to uneven shrinkage. As far as the inkmaker is concerned, ideal conditions for him would be a minimum of moisture, but he recognizes the fact that such a requirement would necessarily lead to other press troubles. The standardization and the maintenance of definite moisture schedules would be of great aid in the elimination of drying difficulties.

The recent trend toward highly finished displays and packages has led to the development of a series of new stocks coated with all types of cellulose products and other synthetics. This tendency has brought

with it the need for special inks that are suitable for such specialties in paper. Flint-coated stocks were about the first of these specially finished papers that required inks of unusual formulation to make them practical from a printers' standpoint. The highly polished, waxy finish on these stocks presented a problem of adhesion as well as one of drying. The situation presented appeared to be one similar to the builder who was trying to erect a house on a sandy foundation—one which would shift with the wind, so to speak. The application of special binding vehicles made on a synthetic base was instrumental in aiding the inkmaker in producing a product that would fulfill both of the above special characteristics of flint-coated stocks. In this instance, the inkmaker might consider himself fortunate, but since there are a number of other stocks similar to flint-coated stocks with which he has thus far been unsuccessful in developing the proper ink, the struggle must still go on. In some cases, complete lack of drying is indicated, whereas in other instances inks that would ordinarily develop an extremely high gloss will dry out absolutely flat. It is the inkmakers' impression that were he consulted when such stocks were being developed, many headaches could be avoided both for the papermaker as well as the ink man.

Lacquer coated stocks and their corresponding inks are now developed to a stage where the printer can safely proceed with a specific job without being especially concerned about the outcome. Here, too, the original ink formulations had to be considerably altered in order to make them suitable and compatible with the cellulose coatings that make up the surface finish of lacquer coated stocks. Inks for these stocks must be designed to suit the particular plasticizer employed.

Lithographic Problems

Thus far, we have only considered the problems confronted by the typographer. There are still those paper stocks made particularly for the lithographer which demand the attention of the inkmaker in order to assist in overcoming a number of difficulties which are inherent, due to the peculiarities of the lithographic process. The problems, in most cases, revolve around the dampening solutions used in order to effect the separation of the inked and unprinted areas. Where a proper balance is not secured in the regulation of the water, ink difficulties are bound to occur. The paper man may wonder just what relationship such a condition has to the paper being run. In many cases, stocks are so nonreceptive to water that an accumulation builds up on the offset blanket and thus creates an excess of moisture on the lithographic plate which eventually works its way back into the ink. As this process continues and if an insufficient amount of ink is transferred on to the paper due to the design itself, then a breakdown occurs in which an oil and water emulsion is converted into a water and oil emulsion. When this happens, a tint is developed over the entire plate, which may stain the sheet being printed to such an extent that the job becomes entirely unacceptable. It is desirable for a coated paper stock used for lithographic purposes to be more or less water repellant, but quite frequently some coated stocks are so tight in this respect that they may become quite troublesome. The inkmaker has at his disposal a number of ingredients which he can incorporate in his ink to minimize such unhealthy conditions, but he hesitates to go the full extent with such ingredients as in some cases other difficulties, such as picking, offsetting, and piling on the blanket are the result. Regular offset stocks are considerably less troublesome than coated stocks as far as pressroom conditions go. It is only occasionally that it is necessary for the inkmaker to make adjustments on offset stocks to avoid blanket and plate difficulties caused by fibrous accumulations. Even though seldom encountered, there are times when in such offset stocks difficulties experienced cannot be corrected regardless of ink adjustments. Undoubtedly, stock sizings may, in part, contribute their share in such unhappy experiences and once being recognized, can readily be corrected.

Synthetic Resins and Oils

The past several years have seen an increase in graphic decoration of all kinds of paper cartons, boxes, and containers. The use of special box wraps is gradually being replaced by such special stocks as clay-coated and patent-coated paperboards, plus a host of others that are specially designed to give the package of today an attractive appearance. The new stocks used in these manifold cartons and containers have given to the inkmaker a new set of problems which he must face in order to produce satisfactory results. The stocks above-mentioned as well as bleached manila stocks, sulphate stocks, and sulphite paperboards all require ink formulations that must be suited particularly to the stock being used by the printer. Thus in the case of a clay-coated board where a gloss finish is desired of the ink, it is essential to incorporate those ingredients that will remain on the surface. Ordinarily, this is accomplished by the use of a series of special synthetic resins and, sometimes, synthetic oils. These ingredients alone are not the whole answer to the particular problem being considered, as each stock produced by a different manufacturer will require an adjustment by the addition or reduction of compounds to make the ink more suitable. Green or moist board is troublesome. Patent-coated paperboards sometimes give the inkmaker serious concern, due to nonuniformity of printed effects resulting from uneven printing surfaces. Sulphate and sulphite stocks do not print with the same smoothness and evenness of finish and it is for this reason, particularly in the case of the sulphite, that the inkmaker finds himself adding wetting agents to his inks so that his customer, the printer, will be more nearly satisfied. During the period in which containers were being produced with board lined with jute, the inkmaker had relatively easy sailing in producing inks for the container trade. As soon as the kraft stocks entered into this field of boxmaking, new headaches were experienced, since the boxmaker insisted on producing high gloss results on kraft boxes and containers. In this particular instance, the inkmaker has been successful only to a degree and this can be traced largely to the relative differences of these two stocks as indicated when examined under the microscope.

We have indicated but a few instances where it might be desirable for greater cooperation of the paper- and inkmaker in solving many mutual problems; and we hope as time goes on that the paper manufacturers will feel freer to call on the inkmakers' facilities.

FIFTY TYPES OF CAMACHINES

Only the CAMERON MACHINE COMPANY can offer the paper manufacturing and converting industry such a wide range of slitting and roll-winding machines.

There are CAMACHINES for handling tissue, others for handling board; CAMACHINES ranging in width from 18" to 310"; semi-automatic CAMACHINES for turning out small rolls and other CAMACHINES for rewinding rolls to 60 or even 72" diameter; score-cut CAMACHINES and shear-cut CAMACHINES; CAMACHINES for rewinding all rolls side by side on one shaft, also CAMACHINES with two rewinding shafts to provide positive separation by winding adjacent strips onto separate shafts; CAMACHINES with special rewind shafts for handling unevenly coated papers. Some of the latest CAMACHINES are arranged with web tension control, which makes it unnecessary to depend on the operator's skill for proper tension.

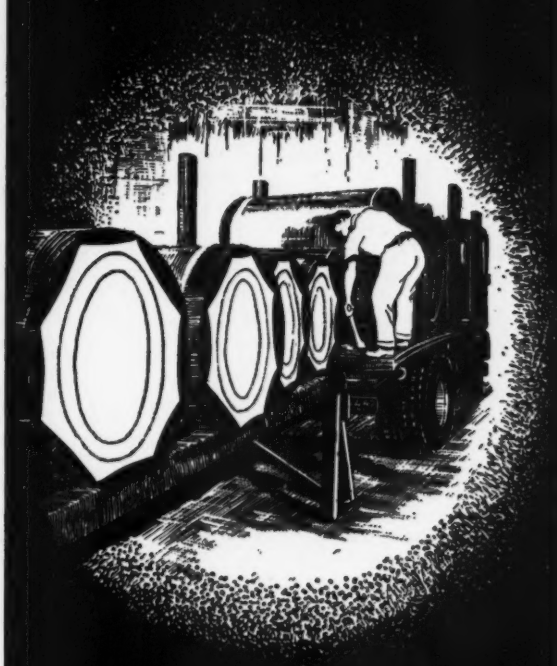
Finally, there are CAMACHINES equipped with the "electric eye" for assuring that all rolls will be wound with perfectly straight ends.

The above means, you can select the one best fitted to your needs. Write for interesting literature today

Slitting and Roll-Winding Machine Headquarters

CAMERON MACHINE COMPANY
61 Poplar St. BROOKLYN, N.Y.

NATIONAL DYES for Colored Newsprint



For coloring of groundwood papers—posters, newsprint, etc.—we offer a selection of National dyes which will produce level shades practically free from visible uncolored wood shives. For further information please contact our Technical Service Department at the below mentioned points.

NATIONAL ANILINE & CHEMICAL CO., INC
40 Rector Street • • New York, New York

BOSTON PHILADELPHIA GREENSBORO CHATTANOOGA
PROVIDENCE SAN FRANCISCO ATLANTA PORTLAND ORE
CHICAGO CHARLOTTE NEW ORLEANS TORONTO

Imports of Paper and Paper Making Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard; Bleached Sulphite More Acute—Some Grades of Old Waste Lower.

Effective September 30, 1939, under Treasury Decision 49,970, all publications, exchanges and trade associations were denied access to import manifests at the New York Customs House. The Paper Trade Journal and other interested parties have vigorously protested this ruling, and as soon as the order of the Treasury Department is modified or rescinded, full publication of all manifests will be resumed in these columns. In the interim, the Paper Trade Journal is making every possible effort to gather all available information from manifests, at various outside sources.

NEW YORK IMPORTS

WEEK ENDING AUGUST 9, 1941

SUMMARY

Newsprint ..... 19,084 rolls
Decalcomania paper ..... 105 cs.
Tissue paper ..... 33 cs.
Cardboards ..... 266 cs.

NEWSPRINT

H. G. Craig Co., Inc., ——, Donnacona, 357 rolls.
——, ——, Liverpool, N. S., 7,572 rolls.
H. G. Craig Co., Inc., ——, Donnacona, 392 rolls.
——, ——, Comeau Bay, 7,683 rolls.
H. G. Craig Co., Inc., ——, Donnacona, 411 rolls.
International Paper Co., ——, Gatineau, 285 rolls.
——, ——, Cornerbrook, 1,716 rolls.
H. G. Craig Co., Inc., ——, Donnacona, 377 rolls.
International Paper Co., ——, Gatineau, 291 rolls.

DECALCOMANIA PAPER

——, ——, Liverpool, 3 cs.
B. F. Drakenfeld & Co., ——, Liverpool, 102 cs. (duplex).

TISSUE PAPER

G. F. Malcolm Co., ——, Liverpool, 32 cs.
O. Hommel Co., ——, Liverpool, 1 cs.

CARDBOARDS

Gondrand Shipping Co., ——, Genoa, 266 cs.

RAGS, BAGGINGS, ETC.

Green Textile Associates, ——, Bombay, 175 bls. cotton waste.
——, ——, Buenos Aires, 501 bls. cotton linters.
——, ——, Liverpool, 60 bls. rags.
Irving Trust Co., ——, Rio de Janiero, 40 bls. old clothes.
Philadelphia National Bank, ——, Callao, 58 bls. cotton linters.
——, ——, Callao, 85 bls. cotton waste.
W. R. Grace & Co., ——, Callao, 31 bls. cotton linters.

OLD ROPE

——, ——, Cristobal, 1 ble.

HIDE CUTTINGS

——, ——, Liverpool, 204 bags.

CASEIN

National Dairy Products Corp., ——, Buenos Aires, 166 bags, 9,960 kilos.
——, ——, Buenos Aires, 250 bags, 15,000 kilos.
H. S. Cramer & Co., Inc., ——, Buenos Aires, 1,000 bags, 50,000 kilos.

Paper Securities Attract Interest

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., August 11, 1941—The activity and firmness of newsprint and other paper company securities on the Montreal Stock Exchange and Curb Market during the past week has attracted some attention. When judged by what the market was accustomed to do a few years ago the turnover in paper securities was not large, but it stood out boldly in relation to the dull sessions which have become chronic in recent months. In addition to the stocks, newsprint bonds have also reflected an increased interest and have shown a moderate improvement in price. In discussing the possible reasons for this renewal of interest in paper securities by the investing public, the Montreal Daily Star, in its financial section says:

"The Street found no specific reason for the increased activity and firmer undertone in this group. It is true that the market as a whole also showed that the line of least resistance was upward, but the paper group acted as if more than the average amount of interest was shown in it.

"While the situation in the rayon industry naturally obtruded itself into the picture, it was soon ruled out. The demand for the kind of pulp used in the rayon industry is sure to increase due to the restrictions on imports of silk, but it is expensive to convert a pulp plant from the manufacture of the kind used in the paper trade to that used for rayon. Moreover, it requires machinery which would be hard or impossible to get at this time."

To Reopen Bayless Mill

COUDERSPORT, Pa., August 7, 1941—Harry K. Williamson, formerly one of the receivers and now general manager of the Bayless Pulp and Paper Corporation, which was sold to Veda Mines, Inc., of Telluride, Colo., announced today that operations would be resumed at the plant by August 14.

Mr. Williamson said hiring already had begun and repairs are being made to the plant. He asserted that a minimum of $65,000 and more likely $175,000 would be necessary to bring the plant to efficient standards.

The Veda concern purchased the plant last week for $175,000.

Paper House to Move

Norbert A. Considine, president, Paper House of Pennsylvania, Philadelphia, Pa., announces the removal of his company from 28 North 6th street to new quarters at 7 Walnut street, corner of Front, which address has been used by the company for storage purposes over a period of years. Availing himself of the opportunity of securing additional space on the second floor of the Walnut street headquarters, thereby having all departments segregated in one building, Mr. Considine promptly negotiated for this extra space.

ELIXMAN

CAPS

Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

Long draw protected slot caps of heavy gauge steel in all standard sizes.

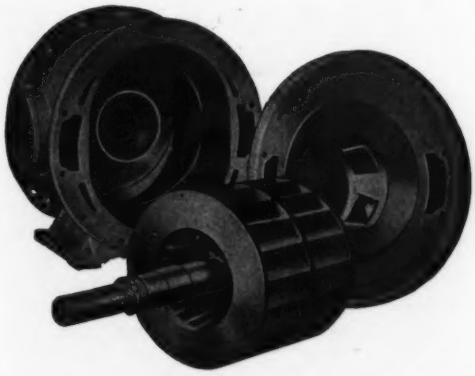
Heavy duty caps with reenforced square hole. This patented feature of reenforcement gives added strength and durability.

CORES

Samples of caps or cores will be gladly submitted

ELIXMAN PAPER CORE COMPANY, INC.
CORINTH, N. Y.

SIMPLICITY



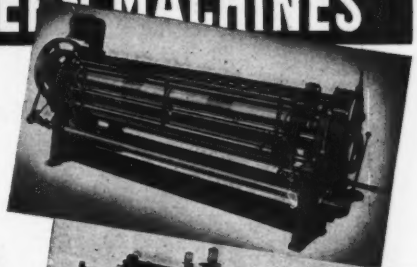
NASH VACUUM PUMPS HAVE ONE MOVING PART

Operating advantages made possible by the Nash principle, and present in no other type of vacuum pump, permit a new level of operating economy. Nash Vacuum Pumps have but one moving part, a rotor cast in one piece, and revolving without metallic contact. There are no valves, no pistons or sliding vanes, no internal parts requiring wear adjustment or lubrication.

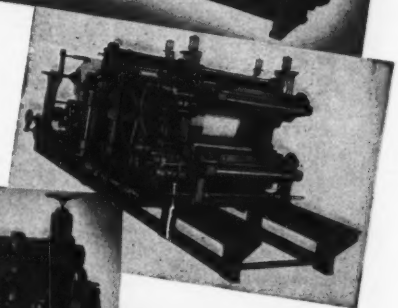
NASH ENGINEERING COMPANY
SOUTH NORWALK, CONNECTICUT, U. S. A.

High Production Calls For
MODERN MACHINES

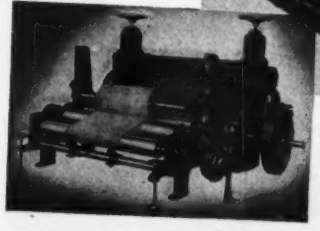
Toilet Roll Rewinder



Printing Press for printing both sides of web



General Purpose Embosser



The above machines represent only a few of our varied line. Write us regarding your requirements for paper converting machinery.

PAPER CONVERTING MACHINE CO.
GREEN BAY, WISCONSIN
Manufacturers of paper converting machinery for all purposes

New York Paper and Pulp Market Review

Paper and Pulp Markets Strong—Paper Board and Lower Grades of Old Waste Paper Stabilized By Agreement With Government—Top Grades of New White Cotton Cuttings Advanced This Week.

Office of the PAPER TRADE JOURNAL,
Wednesday, August 13, 1941.

A trend toward a more settled paper market is reflected this week in reports from some production and distribution centers. This slight change may be an early indication that the Government's efforts to check a rapid rise in prices is proving successful, or the first sign of a gradual decline from the high level of production in July as priorities for goods and materials essential to defense are beginning to restrict the great buying wave of civilian goods. These aspects of the current market situation apparently represents trade opinion on the subject at this date.

The index of general business activity declined to 132.1% for the week ended August 2, from 133.3% for the previous week, compared with 106.8% for the corresponding week last year. Paper board production declined fractionally.

Paper production for the week ended August 2 was estimated at 100.7%, compared with 101.9% for the previous week, and with 87.4% for 1940, with 80.3% for 1939, with 73.2% for 1938, and with 82.7% for the corresponding week for 1937.

Paper board production for the week ended August 2 was 93.0%, compared with 74.0% for 1940, with 70.0% for 1939, with 65.0% for 1938, and with 73.0% for the corresponding week for 1937.

Although orders for the first half of the current year were 25% above the like period last year, inventory figures as are available indicate somewhat more buying for the future. Consumption, however, is continuing high, government purchases accounting for a very substantial tonnage in both paper and paper board.

The stabilization of the major grades of paper board through agreement of leading Eastern producers and the Office of Production and Civilian Supply, has stabilized this market for some weeks, at least. Similarly, the agreement reached on some grades of waste paper, effective August 8 and extending to October 1, has brought stability to the paper stock market. The price agreed upon for No. 1 mixed paper is $11.50 per short ton; No. 1 baled or folded news, $13 per ton, and on corrugated boxes, $16.50 per ton, f.o.b. New York.

Backlog orders in many grades of paper are at the rate of one to two months production at the current capacity ratio. Folding paper box shipments have declined from the 65% increase in orders reported booked for July, but continue at a record high. Corrugated board is reported in some quarters as becoming scarce. At least one leading converter is reported accepting no orders for delivery before March, 1942.

Paper prices are firm and unchanged, with demand and higher costs exerting pressure for an upward adjustment from current quotations. At this date, there is no definite indication that average, representative quoted market prices will be revised in the last quarter of this year.

Chemical Pulp

Domestic production of bleached and unbleached sulphite pulp increased during the second quarter of this year, and substantial gains in output are reported in bleached and unbleached sulphate, while substantial increases are also reported in soda pulp during that period.

Wood pulp imports for the first five months of 1941, all grades, aggregated 407,592 tons, compared with 686,306 tons for the like period in 1940.

Exports aggregated 163,986 tons, compared with 172,049 tons for the first five months of 1940.

Rags

The strong tone of the rag market is indicative of pressure for higher prices in the higher grades. Advances are reported this week on new white No. 1 shirt cuttings, currently quoted at from 7.00 to 7.25; on new unbleached, at from 7.00 to 7.15; and on the fancy grade, at from 2.50 to 2.75.

Old Rope and Bagging

A strong market and active demand for old rope is reported at this date. Prices are unchanged.

Trading in scrap bagging is currently a little less active than last week. Prices are firm and the situation of limited supplies still continues.

Old Waste Paper

The lower grades of old waste paper are apparently stabilized for the present through agreement. The higher grades are stronger this week, with higher prices reported on some grades. Envelope cuttings have advanced at from 3.50 to 3.75; ordinary hard white No. 1, at from 3.00 to 3.25; and soft white No. 1 is currently quoted at from 2.50 to 2.75.

Twine

Active demand for many grades of twine continues to be reported at this date. Manufacturers in general, are reserving the privilege of limited quantities. Prices on imported fibers are of a nominal character.

Waste Paper Prices Stabilized

WASHINGTON, D. C., August 11, 1941—Twenty companies operating factories in the New York area have agreed individually with the Office of Price Administration and Civilian Supply not to bid more for three low grades of waste paper used in their manufacturing processes than the "New York" price settled upon by OPACS and dealers in waste paper last month, it was announced today.

These prices are $11.50 per ton for No. 1 mixed paper, $13 per ton for No. 1 baled new, and $16.50 per ton for used corrugated boxes, all f.o.b. cars New York. The agreement on bids went into effect as of 2:30 P. M. Friday, August 8, 1941, and will continue in force until October 1, 1941, when existing arrangements with waste-paper dealers expire.

"NON-USERS ARE THE LOSERS"

50TH ANNIVERSARY

TENAX FELTS

Meet "Kid TENAX"

When this Lusty Infant made his bow in the paper world a half century ago, his motto was

"Watch TENAX FELTS Grow"

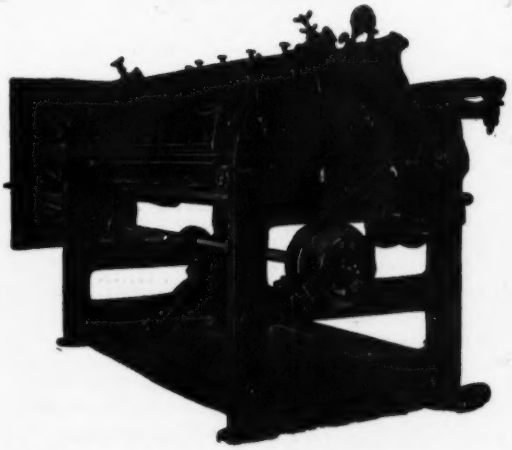
TENAX has been a consistent winner for Water Removal at Presses, for Full and True Trim, for Finish and Service—a Profit Producer in mills from coast to coast.

"Non-Users Are The Losers"

LOCKPORT FELT COMPANY
NEWFANE, N. Y. U.S.A.

MODEL 28

ROLLER BEARING CUTTER



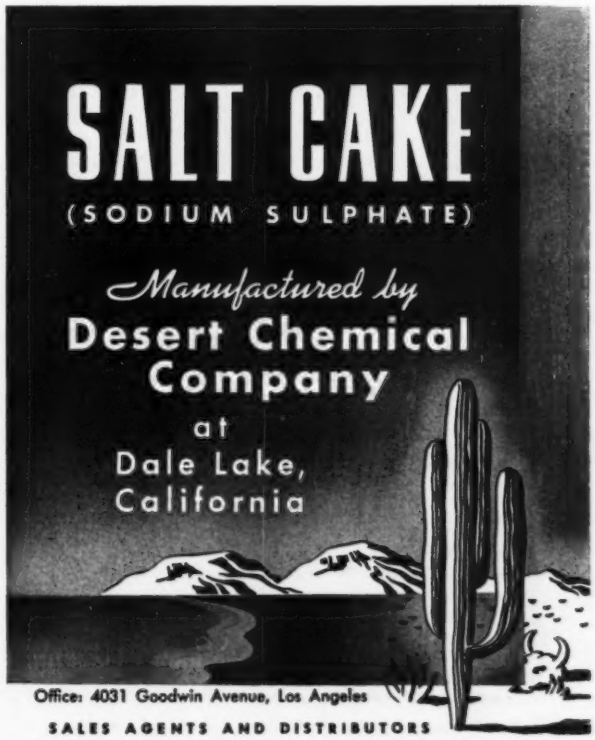
HAMBLET MACHINE CO.
LAWRENCE, MASS.

MAKERS OF
SINGLE, DUPLEX AND DIAGONAL PAPER CUTTERS
CUTTER KNIVES, PATENT TOP SLITTERS.

SALT CAKE

(SODIUM SULPHATE)

Manufactured by
Desert Chemical Company
at
Dale Lake, California



Office: 4031 Goodwin Avenue, Los Angeles

SALES AGENTS AND DISTRIBUTORS
SALTCAKE SALES CORPORATION
230 Park Avenue New York, N. Y.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL.
Wednesday, August 13, 1941.

BLANC FIXE—Prices on blanc fixe are firm and unchanged and conform to prevailing market levels. The pulp is currently quoted at $35 per ton, in barrels, at works; the powder is currently quoted at $50 per ton, f.o.b., works. Demand reported moderate for the week.

BLEACHING POWDER — Quotations on bleaching powder are firm. Demand reported active for the week. Bleaching powder is currently quoted at $2 per 100 pounds, in drums, at works.

CASEIN—Prices on casein are firm, with prices a little higher for the current week. Standard domestic casein, 20-30 mesh, is currently quoted at 22½ cents per pound; 80-100 mesh, at 23 cents per pound. All prices in bags, car lots. Argentina casein, 20-30 mesh, is currently offered at 21 cents per pound. No quotations on French casein.

CAUSTIC SODA—Quotations on caustic soda are firm and continue unchanged at prevailing market prices. Demand reported active. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, car lots, at works.

CHINA CLAY—Prices on china clay are firm and conform to prevailing market levels. Demand reported moderate at this date. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay at from $12 to $22 per ton, at mines. Imported clay is currently offered at from $13 to $25 per long ton, ship side.

CHLORINE—Quotations on chlorine are firm and unchanged. Demand heavy. Market under mandatory priority ruling. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported firm for the week with prices higher on some grades. "G" gum rosin is currently quoted at $2.45 per 100 pounds, in barrels. Savannah "FF" wood rosin is currently quoted at $2.45 per 100 pounds, in barrels, New York. Seventy per cent gum rosin size is quoted at $2.96 per 100 pounds, f.o.b., works.

SALT CAKE—Prices on salt cake are firm and nominal. Demand heavy. Domestic salt cake is currently quoted at $15.50 per ton, in bulk; chrome cake at $16 per ton. All prices in car lots, f.o.b., shipping point. The quotation of $16 per ton imported salt cake is nominal.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market levels. Demand reported active for the week. Prices on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch are firm and are reported unchanged for the current week. Pearl is currently quoted at $3.10 per 100 pounds; powdered starch at $3.20 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Demand reported good for the current week. The commercial grades are currently quoted at $1.15; iron free at $1.80 per 100 pounds. All prices in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and conform to prevailing market levels. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $19 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $15 to $21 per ton, at mines. No quotations on imported talc.

MARKET QUOTATIONS

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Delivered Zone A			
Northern, Extra Quality	$5.25	@	$6.00
Superstandard	4.87½	"	5.25
Northern Standard Wrapping	4.50	"	5.00
Standard Wrapping	4.50	"	—
Tissues—Per Ream—Carlots			
White No. 1	.97½	"	—
White No. 1 M. G.	.95	"	—
White No. 1½	.80	"	—
White No. 2	.75	"	—
Anti-Tarnish M. G.	.80	"	—
Colored	.85	"	—
Kraft	.87½	"	—
Manila	.77½	"	—
Unbl. Toilet, 1 M.	3.75	"	—
Bleached Toilet	5.26	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.10	"	—
Bleached, Jr.	3.60	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	8.75	@	10.75
No. 1 Manila Wrapping, 35 lb.	5.50	"	5.75
No. 2 Manila Wrapping, 35 lb.	5.25	"	5.50
Boards, per ton—			
News	45.00	@	—
Chip	45.00	"	—
Sgl. Mla. Ll. Chip	60.00	"	—
White Pat. Coated	75.00	"	—
Kraft Liners	60.00	"	—
Binders Boards	80.00	"	—

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers	
100% Rag Ext. No. 1	$39.10 @	$46.00	$40.25 @	$47.25
100% Rag	31.05 "	36.50	32.20 "	37.75
85% Rag	.... "	....	29.90 "	35.00
75% Rag	23.60 "	27.75	24.75 "	29.00
65% Rag	.... "	....	21.65 "	26.25
50% Rag	17.55 "	21.50	18.70 "	22.75
25% Rag	14.65 "	17.75	15.80 "	19.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds		Ledgers	
No. 1	$9.35 @	$11.50	$11.55 @	$12.75
No. 2	8.50 "	10.25	9.65 "	11.75
No. 3	8.05 "	9.25	9.20 "	11.25
No. 4	7.70 "	9.50	8.90 "	10.75

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper.

Delivered in Zone 1:

No. 1 Glossy Coated	$11.90 @		$13.50
No. 2 Glossy Coated	10.35 "		11.75
No. 3 Glossy Coated	9.55 "		11.00
No. 4 Glossy Coated	9.15 "		10.50
No. 1 Antique (watermarked)	9.05 "		10.50
No. 2 Offset	8.40 "		9.75
A Grade E. F.	8.20 "		9.50
A Grade S. & S. C.	8.45 "		9.75
B Grade E. F.	7.65 "		8.75
B Grade S. & S. C.	7.90 "		9.00
C Grade E. F.	7.35 "		8.50
C Grade S. & S. C.	7.60 "		8.75
D Grade E. F.	7.10 "		8.25
D Grade S. & S. C.	7.35 "		8.50

Ivory & India at 2.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	No prices		
Dry	No prices		
(Delivered)			
No. 1 Domestic and Canadian	40.00	@	42.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	3.72½	@	3.87½
Prime Qualities—			
Easy-Bleaching Sulphite	3.17½	"	3.73
Strong Unbleached Sulphite	3.17½	"	3.73
News Grade, delivered Unbleached Sulphite	61.00	"	64.25
(On Dock, Atlantic Ports)			
Kraft Bleached	4.12½	"	——
Kraft Light & Strong	3.75	"	4.15
Kraft No. 1	3.60	"	4.00
(F. o. b. Pulp Mill)			
Kraft Domestic and Canadian	2.75	"	3.37½
(Delivered)			
Soda Bleached	3.30	"	——

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1.	7.00	@	7.25
Silesias No. 1	4.25	"	4.50
New Unbleached	7.00	"	7.25
Blue Overall	4.75	"	5.00
Fancy	2.50	"	2.75
Washables	2.00	"	2.15
Mixed Khaki Cuttings	2.50	"	2.75
O. D. Khaki Cuttings	3.00	"	3.15

Old Rags

White, No. 1—			
Repacked	3.10	"	3.35
Miscellaneous	2.35	"	2.45
White, No. 2—			
Repacked	2.50	"	2.75
Miscellaneous	2.00	"	2.25
Thirds and Blues—			
Repacked	1.25	"	1.35
Miscellaneous	1.10	"	1.25
Roofing Rags—			
No. 1	1.30	"	1.35
No. 2	1.20	"	1.25
No. 3 (bagging)	.95	"	1.00
No. 4	.90	"	.95
No. 5A	.90	"	.95

Foreign Rags

All prices nominal.

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—

West Virginia Pulp and Paper Company

230 Park Ave. New York
35 East Wacker Drive Chicago
Public Ledger Building Philadelphia, Pa.
503 Market St. San Francisco, Cal.

Manufacturers of
ENGLISH FINISH SUPERCALENDERED MACHINE FINISHED BOOK and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Mimeograph, Ledger, Eggshell, Cover and Music Papers, Index Bristol, Post Card and Label Papers

HIGH GRADE COATED BOOK

• • • •

KRAFT WRAPPING AND KRAFT ENVELOPE
KRAFT LINER BOARD
BLEACHED SULPHITE AND SODA PULP
BLEACHED AND UNBLEACHED KRAFT PULP

MILLS:
Mechanicville, New York
Luke, Maryland
Covington, Virginia
Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Cass, West Virginia
Charleston, South Carolina

More than just a TRADE MARK

EXCELSIOR KNOX Woolen Co. Camden, Me. FELTS & JACKETS

BUT also a guarantee by men who for 75 years have prided themselves in making finer felts. TO YOU —this is the mark of dependability, longer felt life and greater saving.

KNOX WOOLEN CO.
CAMDEN, MAINE.

"INDEX" TO BETTER QUALITY PAPER

FOR

Bleach Preparation
Caustic Extraction in Bleaching
Cooking Wood
De-inking
Digestion of Plant Material
Grinding Wood
pH Control
Size Manufacture

→ USE SOLVAY CAUSTIC SODA

FOR

*Bleaching Fibres and Pulp
Slime Control
Water Treatment

→ USE SOLVAY LIQUID CHLORINE

FOR

Adjusting Sulfidity Ratio
Causticizing
Cleaning Floors, Machinery, etc.
Cooking Wood
De-inking
Digestion of Vegetable Material
pH Control
Pitch Removal
Salt Cake Substitute (with gypsum)
Size Manufacture
Water Treatment

→ USE SOLVAY SODA ASH

*Write today for information on the Solvay multi-stage bleaching operation.

FOR TECHNICAL SERVICE . . . In the Solvay laboratories, actual pulp and paper men with years of practical experience in pulp and paper mills study your problems and make sample runs of pulp as the basis for recommendations. *Solvay will be glad to send these pulp specialists into your plant to study actual operating conditions and help adapt laboratory findings to specific plant conditions.* Write today.

SOLVAY SALES CORPORATION
Alkalies and Chemical Products Manufactured by The Solvay Process Company
40 Rector Street, New York, N. Y.

No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	"	4.75
No. 2 White Cotton.	3.25	"	3.75
No. 3 White Cotton.	2.50	"	3.00
No. 4 White Cotton.	1.90	"	2.20
Extra Light Prints..	2.00	"	2.40
Ord. Light Prints...	1.75	"	2.15
Med. Light Prints...	1.55	"	1.95
Dutch Blue Cottons.	2.25	"	2.50
French Blue Linens.	3.00	"	—
Checks and Blues...	2.00	"	—
Linsey Garments....	1.90	"	2.00
Dark Cottons.....	1.50	"	1.60
Old Shopperies.....	1.30	"	1.45
New Shopperies.....	1.45	"	1.50
French Blues.....	2.25	"	2.50

Old Rope and Bagging

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.15	@	4.25
Wool Tares, light....	2.50	"	2.75
Wool Tares, heavy..	2.50	"	2.75
Bright Bagging.....	3.15	"	3.30
Manila Rope—			
Foreign	6.00	"	6.25
Domestic	6.00	"	6.25
Jute Threads.....	3.50	"	3.75
Sisal Strings	2.10	"	2.35
Mixed Strings.....	1.10	"	1.20

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	3.50	@	3.75
Ordinary Hard White No. 1....	2.75	"	3.00
Soft White No. 1..	2.50	"	2.75
Soft White Extra..	2.70	"	2.85
Flat Stock—			
Stitchless	1.10	"	1.25
Overissue Mag.....	.90	"	1.00
Solid Flat Book....	.90	"	.95
Crumbled No. 1 ..	.70	"	.75
Ledger White Stock.	2.10	"	2.15
Ledger Stock Colored	1.75	"	1.90
Manila—			
New Env. Cut....	3.25	"	3.50
New Cuttings.....	3.00	"	3.25
Old Kraft Machine Compressed bales..	1.75	"	2.00
News—			
No. 1 White News	1.50	"	1.60
Strictly Overissue.	.75	"	.80
Strictly Folded....	.65	"	—
Corrugated	.82½	"	—
No. 1 Mixed Paper..	.57½	"	—

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.20	@	—
White Hemp.....	.20	"	—
Fine Polished—			
Fine India.....	.24	"	—
Unpolished—			
Box	.16¼	"	—
Paper Makers.....	.16	"	—
Tube Rope.....	.17½	"	—
Wall Paper.....	.19½	"	—
Wrapping	.21	"	—
Soft Fiber Rope...	.18	"	—
Cotton	.24	"	—

(Hard Fiber)

Medium Java.....	.15	"	—
Mex. Sisal.....	.14	"	—
Manila	.26	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White No. 1.	.06¾	@	.07
New White No. 2.	.04	"	.04¼
Light Silesias.....	.04½	"	.04¾
Silesias, No. 1....	.04	"	.04¾
Black Silesias, soft	—	"	.03
New Unbleached...	.06½	"	.06¾
Washable Prints..	.02½	"	.03
Washable No. 1..	—	"	.01½
Blue Overall.....	.04	"	.04½
Cottons—According to grades—			
Washable shredding	—	"	.01½
Fancy Percales....	.03	"	.03¼
New Black Soft...	.02½	"	.02¾
New Light Seconds	—	"	.04
New Dark Seconds	—	"	1.50
Khaki Cuttings—			
No. 1 O. D.....	.03	"	.03¼
No. 2 Mixed.....	.02	"	.02¼
Corduroy	.01¾	"	.01½
New Canvas.....	.04½	"	.05
New Black Mixed.	—	"	.02¼

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	"	3.00
Thirds and Blues—			
Miscellaneous	1.35	"	1.50
Repacked	1.55	"	1.65
Black Stockings (Export)	Nominal		
Roofing Stock—			
Foreign No. 1....	Nominal		
Domestic No. 1....	1.35	"	1.40
Domestic No. 2...	1.15	"	1.20
Roofing Bagging..	1.05	"	1.10

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	3.25	@	3.75
Domestic	3.50	"	3.75
Manila Rope.....	—	"	5.50
Sisal Rope.....	3.50	"	—
Mixed Rope.....	.75	"	1.00
Scrap—			
No. 1.....	3.25	"	3.50
No. 2.....	—	"	1.50
Wool Tares, heavy...	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.25	"	3.50

Old Papers

(F. o. b. Phila.)

Shavings—			
Hard White Special	3.15	@	3.20
Hard White.....	2.90	"	3.00
No. 1 Soft White..	2.25	"	2.30
No. 2 White.....	1.85	"	1.90
No. 1 Mixed.....	1.20	"	1.25
Solid Ledger Stock..	2.00	"	2.10
Ledger Stock, white.	1.80	"	1.90
Ledger Stock, colored	1.70	"	1.75
No. 1 Books, heavy..	1.25	"	1.30
Manila Cuttings.....	2.00	"	2.25
Print Manila	.75	"	.80
Container Manila....	.65	"	.70
Kraft Paper.....	1.65	"	1.70
No. 1 Mixed Paper..	.57½	"	—
Straw Board Chip...	.50	"	—
Binders Board Chip..	.50	"	—
Corrugated Board....	.80	"	—
Overissue News.....	.85	"	.90
Old Newspapers.....	.65	"	—

BOSTON

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.15	@	3.25
No. 1 Soft White	2.50	"	2.75
No. 2 Mixed.....	.90	"	1.00
Solid Ledger Books..	2.00	"	2.10
Overissue Ledger Stock	1.75	"	2.00
White Ledger Stocks	1.50	"	1.65
Mixed Ledgers	1.25	"	—
No. 1 Heavy Books	1.10	"	1.20
No. 1 Books, Light..	.75	"	.85
Crumpled Stitchless Book Stock	1.15	"	1.20
Manila Env. Cuttings	3.00	"	3.25
Manila Envelope Cuttings, extra quality	2.75	"	3.00
White Blank News..	1.70	"	1.80
No. 1 Kraft.....	1.35	"	1.45
Extra No. 1 Kraft..	1.75	"	—
Mixed Papers.....	.57½	"	—
Print Manila.....	.70	"	—
Container Manila....	.65	"	.75
Old Newspapers.....	.65	"	—
Paper Wool Strings.	1.30	"	1.35
Overissue News	.65	"	.70
Box Board Chips....	.35	"	—
Corrugated boxes....	.80	"	.85
Kraft corrugated boxes	1.40	"	1.50
New Kraft Corrugated Cuttings	1.90	"	2.00
Screening Wrappers.	.85	"	.90

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	4.50	@	4.60
Sisal Rope	3.50	"	—
Mixed Rope.....	1.00	"	1.25
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Soft Jute Rope.....	4.75	"	5.00
Manila Rope—			
Foreign .....(nominal)			
Domestic	6.00	"	6.25
Jute Carpet Threads.	3.00	"	3.25
Bleachery Burlap....	7.50	"	8.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	4.25	"	—
Scrap Sisal.....	3.25	"	3.50
Scrap Sisal for Shredding	3.25	"	3.50
Wool Tares—			
Foreign	(nominal)		
Domestic	4.00	"	4.25
Aust. Wool Pouches.	4.25	"	4.50
New Burlap Cuttings	4.50	"	5.00
Heavy baling bagging	4.00	"	4.25
Paper Mill Bagging..	3.50	"	3.75
No. 2 Bagging.....	.60	"	.75

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints.	—	@	.03
Fancy Percales....	.03¾	"	4.00
New White No. 1.	.07½	"	8.00
New Light Flannelettes	.04½	"	5.00
Canton Flannel, Bleached	.06¾	"	7.00
Underwear Cutters, Bleached	.06¾	"	7.00
Silesias No. 1.....	.04¼	"	.04½
New Black Silesias..	4.00	"	—
Red Cotton Cuttings	.03½	"	4.00
Soft Unbleached.....	.06½	"	.06¾
Blue Cheviots.....	.04½	"	.04¾
Fancy	.01¾	"	.02
Washable	.01¾	"	—
Cottons—According to Grades—			
Blue Overalls.....	.04¼	"	.04½
New Black, Soft..	.03	"	.03¼
Khaki Cuttings.....	.02¼	"	.02½
O. D. Khaki.....	.02½	"	.03¼
Corduroy	.02	"	.02¼
New Canvas.....	.05½	"	—
B. V. D. Cuttings...	.06¼	"	.07

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	2.75	@	3.00
Miscellaneous	2.00	"	2.25
White No. 2—			
Repacked	1.90	"	2.00
Miscellaneous	2.00	"	2.25
Twos and Blues.....	1.75	"	2.00
Old Blue Overalls...	1.60	"	2.00
Thirds and Blues....	1.50	"	—
Miscellaneous	1.25	"	1.35
Black Stockings.....	3.50	"	4.00
Roofing Stock—			
No. 1.....	1.20	"	1.25
No. 2.....	.95	"	1.00
No. 3.....	.85	"	.95

Foreign Rags

(F. o. b. Boston)

Canvas .....(nominal)	
Dark Cottons.....(nominal)	
Dutch Blues.....(nominal)	
New Checks and Blues(nominal)	
Old Fustians.....(nominal)	
Old Linsey Garments.(nominal)	
New Silesias.....(nominal)	

Specialists May Still Apply

The Government continues its search for specialists in all branches of industry and business. The Federal Civil Service examination for Industrial Specialists, announced on July 7, has been amended to remain open for receipt of applications until further notice.

The National Defense Program needs men with experience in one or more of the following fields: iron and steel, non-ferrous metals, machine tools, ordnance, aircraft, marine and automotive equipment; railroad repair shops, radio and other electrical equipment, supplies and apparatus; textiles, Forest products, paper, printing and publishing, chemicals and allied products, plastics, petroleum and coal products, rubber products, stone, clay and glass products; leather and its manufactures, and food and kindred products.

Salaries range from $2,600 to $5,600 in the various grades. No written examination is given. Application forms may be obtained from Civil Service Representatives at any first- or second-class post office or at a Civil Service District Office.

U. S. Army Camp Study Ready

A comprehensive analysis and study of the methods of properly contacting and selling to U. S. Army Camps, Post Exchanges, Ship Stores and allied markets is now ready.

This was undertaken by Profitable Marketing, business research organization, Chapman Building, Los Angeles, Calif.

The establishment of over 100 camps and approximately 600 other military bases in the United States, together with the general Rearmament Program, have created a vast source of new opportunities for volume sales.

According to Profitable Marketing, manufacturers and suppliers of paper products would do well to study, understand and adapt themselves to the new conditions as soon as possible. They will be serving their country as well as themselves. The organization's latest Bulletin may be had for 25 cents by writing direct and mentioning this publication.